A STUDY TO EVALUATE THE EFFECTIVENESS OF DRUMSTICK LEAVES EXTRACT WITH AMLA POWDER ON ANEMIC STATUS AMONG ADOLECENT GIRLS AT C.S.I. RUTH ILLAM FOR GIRLS IRUNGALUR, TRICHY DISTRICT

M.Sc (NURSING) DEGREE EXAMINATION

BRANCH II- CHILDHEALTH NURSING

INDIRA COLLEGE OF NURSING

KONALAI, TIRUCHIRAPPALLI

University Seal:

DISSERTATION SUBMITTED TO

THE TAMILNADU DR.M.G.R.MEDICAL UNIVERSITY, CHENNAI

In partial fulfilment of requirement for the degree of

MASTER OF SCIENCE IN NURSING

OCTOBER – 2018

A Study to evaluate the effectiveness of drumstick leaves extract with amla powder on anemic status among adolecent girls at C.S.I. Ruth illam for girls Irungalur, Trichy district

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Internal Examiner

External examiner

Date: _____ Date:

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The Tamil Nadu Dr. M.G.R. Medical University

Chennai-32

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BONAFIDE CERTIFICATE

This is to certify that the dissertation entitled **"Effectiveness of drumstick leaves extract with amla powder on anemic status among adolescent girlsat c.s.i. Ruthillam for girls irungalur, Tiruchirappalli District"** is a bonafide research work done by **Mrs.Rani joseph, II year MSc (N), Indira** College of Nursing, Tiruchirappalli under theguidance of **Associate Professor /Professor Mrs. Mohanambal, MSc. (N),** Child Health Nursing in partial fulfillment of the requirements for the Degree of Master of Science in Nursing under Tamilnadu Dr.M.G.R. Medical University.

Principal

Place : Trichy

Date : 10.08.2018

DECLARATION

I here declare that the present dissertation titled**"Evaluate the effectiveness of drumstick leaves extract with amla powder on anemic status among adolescent girls at C.S.I. Ruth Illam for girls Irungalur, Trichydistrict".** Outcome of the original research work undertaken and carried out by me,under the guidance of research guide **Prof. Mrs. Sherene G. Edwin,M.Sc(N),PhD(N),** Principal, and **Mrs. MOHANAMBAL M.Sc(N),** vice principal, Indira college of Nursing, konalai.

I hereby declare that the material of this has not found in any way, the basis for the award of any degree / diploma in this university or any other university.

301618302

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"For the Lord will not cast off forever"

Great is our lord and mighty in power; his understanding has no limit. Words are powerless to express my gratitude to God Almighty for his strength and wisdom throughout the study.

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ABSTRACT

This is to certify that the dissertation entitled **"Evaluate the effectiveness of drumstick leaves extract with amla powder on anemic status among adolescent girls at C.S.I. Ruth Illam for girls Irungalur, Trichy district"** is a bonafide work done by Rani Joseph, Indira college of Nursing Konalai, Trichy submitted in partial fulfillment for the degree of Master of Science in Nursing from the Tamil Nadu Dr.M.G.R. Medical University, Chennai.

The objectives of the study

1. To assess the level of anemic status among adolescent girls before and after intervension
2. To evaluate the effectiveness of drumstick leaves extract and amla powder on levels of anemic status among adolescent girls
3. To find out association between the pre testpost test levels of anemic status among adolescent girls with selected demographic variables.

Research hypotheses were formulated to find the effectiveness of the drumstick leaves soup with amla powder. The review of literature was done and organized under the following headings. Review related to anemia, studies related to anemia, studies related to drumstick leaves in improving haemoglobin level. The conceptual framework was based on Widenbach's helping art theory (1964). Quasi experimental one group pre testpost test design was adopted for this study. The sample size was 30. The tool was validated by experts and found to be valid for this study. The reliability was established through the test-retest method. The tool was administered to the adolescent girls, after a gap of 15 days the retest was given.

The main study conducted among the adolescent girls at CSI Ruth Illam for girls, Irungalur, Trichy. The samples were selected by using non probability purposive sampling method. The pre estimation level of haemoglobin was done and the drumstick leaves Soup with Amla Powder was administered for 15 days and the post estimation level of haemoglobin was done. Along with this, a well-structured questionnaire was applied.

The collected data were tabulated, analyzed and interpreted by using descriptive and inferential statistics and the finding shows that , in the prevalence of anemia all the adolescent girls were having from 1 to 20signs and symptoms in that the major complaints is hair loss, fatigue and problems in concentration and thinking, in the level of haemoglobin ,had mild level of anemia and had moderate level of anemia in the pre-test and had mild level of anemia and had no anemia in the post test.It shows that there is a difference between the pre and post level of hemoglobin. The main study conducted among the adolescent girls at CSI Ruth Illam for girls, Irungalur, Trichy. The samples were selected by using non probability purposive sampling method. The pre estimation level of haemoglobin was done and the drumstick leaves extract with Amla Powder was administered for 15 days and the post estimation level of haemoglobin was done. The collected data were tabulated, analyzed and interpreted by using descriptive and inferential statistics and the finding shows that , in the prevalence of anemia all the adolescent girls were having from 1 to 20 signs and symptoms in that the major complaints is hair loss, fatigue and problems in concentration and thinking, in the level of haemoglobin ,had mild level of anemia and had moderate level of anemia in the pre-test and had mild level of anemia and had no anemia in the post test.It shows that there is a difference between the pre and post level of haemoglobin.

CHAPTER I

INTRODUCTION

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INTRODUCTION

“Healthy adolescent girls of today are the healthy mothers of tomorrow”

BACKGROUND OF THE STUDY

God created a human as a man and women and in that, a girl is a most beautiful creation in this world; they are the blessed angels of almighty, who after filling their own home with colors of happiness. A girl can give a feel of innocence in the form of daughter, care in the form of sister, warmth in the form of friend, dedication in the form of wife and divinity in the form of mother likewise they took a major role in all stage of her development. In girls, adolescence is a stage which she entering into the opened world with lots of dreams and goals of achievement.

Adolescence is a journey from the world of the child to the world of the adult. It is a time of physical and emotional change as the body matures. Adolescence is a critical transitional period that includes the biological changes of puberty and the need to negotiate key developmental task and it requires special attention and protection. The World Health Organization (WHO) defines adolescents as young people aged 10-19 years .(Adolescent health and development 2014)

Now a day the young adolescent faces many problems because of their life style modifications such as eating Junk foods, fast foods, snacking, skipping of the meal which is common in urban adolescent girls. Some are malnourished due to lack of knowledge about dietary iron, poor socio economic status, low income family which is common in rural areas.

Over the past few decades, the diet quality of adolescents has declined with increased energy intake from fast food, soft drinks, and salty snacks, and decreased fruit and vegetable intake . These trends are of concern given that the prevalence of obesity in adolescents has risen dramatically in the United States within the past 3 decades. Although dietary factors have been implicated in the development of obesity, this relationship is complex and poorly understood. In response to the inconsistent

results found thus far with traditional methods of examining single foods or nutrients, dietary pattern analysis has been suggested for further research in nutritional epidemiology, as this approach may provide further insight into this complex relationship.

Dietary patterns can be defined as the distribution of foods by frequency and/or amount in the habitual diet. Statistical methods such as factor or cluster analysis can be used to derive empirical dietary patterns. The dietary pattern approach has intuitive appeal because the human diet does not consist of a single nutrient or food but instead represents a complex set of highly correlated exposures. Results from studies using dietary patterns analysis may also be more useful for public health initiatives, because describing an overall healthy dietary pattern can be more effective than focusing on single foods or nutrients. Success in intervention trials using a dietary pattern approach to prevent and treat hypertension and reduce cancer risk support this idea.

Numerous studies have examined the dietary intake of adolescents, with most examining intake in terms of nutrients, energy intake, specific foods, or food groups. Although dietary patterns analysis has emerged as a popular alternative to traditional methods used in nutritional epidemiology, most studies have focused on adult populations. In addition, little information on the stability of dietary patterns in adolescents is available. To our knowledge, only 2 previous studies have examined dietary patterns in adolescents in the United States . One examined dietary patterns in urban, low-income adolescents and the other examined dietary patterns in females only . We identified 7 other studies that have used dietary patterns analysis in adolescent populations in other countries , although 4 of these studies combined adolescent data with child data in their analysis . The dietary pattern approach has been used successfully in adult populations to investigate predictors and health outcomes associated with dietary patterns, and additional research in adolescent populations using these methods is warranted.

Dietary Reference Intakes (DRIs) developed by the National Health and Medical Research Council of Australia (NHMRC) provide current quantitative estimates of nutrient intakes to be used for planning and assessing diets for healthy people, including adolescents. The important nutrients that need to increase during

adolescence include energy, protein, calcium, and iron. Anemia results from a nutritional deficiency of iron, foliate, vitamin B 12 and some other nutrients. Low intake of iron will also leads to stunting. Iron is one of the micronutrient. It is used for formation of haemoglobin, oxygen transportation, brain development, regulation of body temperature and muscle activity. When the iron is decreased in human body, it is called as iron deficiency.

According to world health organization (WHO) the haemoglobin level should be 12 g/dl for adolescent girls. When the haemoglobin level less than 12 g/dl is considered as iron deficiency anemia.

WHO/UNICEF/ UNU graded the haemoglobin level

- 10g/dl to11.9 g/dl is considered as mild anemia,
- 7 g/dl to 9.9 g/dl is considered as moderate anemia and
- Less than 7 g/dl is considered as severe anemia
- 12 g/ dl is considered as Non anemic

The decreased dietary iron intake, poor absorption, worm infestation, increased body demand, menstruation are the major causes of iron deficiency anemia among adolescent girls. Iron deficiency is the most wide spread form of malnutrition in the world, affecting more than 2 million people (Stozfus, Preyfus, 2000). Iron deficiency is the most common cause of anemia in adolescent in the United States, and an adolescent girl is 10 times more likely to develop anemia than a boy. Among girls, however, menstruation increases the iron deficiency anemia throughout their adolescent and childbearing years. During adolescence, teenagers will acquire the knowledge and skills that will help them to become independent, successful young adults but, the iron deficiency anemia will affect this learning and development .

Common foods known to inhibit iron absorption are tea, coffee, milk due to phytates, tannins and phosvitin in egg. However, a study from “The American Journal of Clinical Nutrition” indicates that calcium richly supplied through dairy products, has been shown to inhibit iron absorption up to 50 per cent. Children, adolescents and women with iron deficiencies, therefore, should avoid consuming dairy products. Iron and folic acid tablets supplementation is recommended to

combat moderate and severe anemia. Periodic de-worming should be encouraged for once in every 6 months, maintaining hygienic practices like hand washing, wearing regular foot wear practices while going to toilet.

Regular haemoglobin screening tests will identify the iron deficiency anemia in early stage. Education about avoiding the meal skipping, Jung foods and fast foods will prevent the iron deficiency anemia and encourage the intake of low cost iron rich foods such as drumstick leaves, dates, jaggary, ragi, green leaves, chickoo to the rural areas.

Among this drumstick leaves which is scientifically own as Moringa olifera is one of the green leafy vegetables which are rich and natural source of iron. Drum Stick leaves will cure almost 300 types of diseases. It has approximately 90 nutrients and 46 antioxidants. Drumstick Leaves are high in nutrition and medicinal properties. (Smart way to Health, 2013) Drumstick leaves equal to 7 times Vitamin C in oranges, 4 times Vitamin A in carrots, 4 times Calcium in milk, 3 times Potassium in banana, 2 times Protein in yoghurt, 4 timesFiber of oats, 9 times Iron of spinach. Eating drumstick leaves curry, or taking juice regularly can cure anemia. Drumstick leaves with its high beta carotene content (19690 mcg/100g) along with vitamin C from lemon juice may have a positive impact in the mobilization of stored iron and increase haemoglobin levels of anemia. (Vira Junam, January 20, 2013)

As a part of preventing anemia, India is the first country to launch National Nutritional Anemia Prophylaxis Programme at 1970 and also included in 4^{th} five year plan. At 2013 the minister of health and family welfare, Mr. GulamNabi Azad and the honorable chief minister Mr.Siddaramaiah launched a Weekly Iron and Folic acid Supplementation Program (WIFS) for adolescents at Koramangala indoor stadium in Bangalore. It was included in the national programme to reduce the prevalence and severity of anemia under the scheme of Chadha Nehru SehatYojana (NCBI 2013).In Tamil Nadu, the state health society invites the non-governmental organization for implementation of Anemia Control Programme among pregnant women and adolescent girls using behavior change communication strategy in 18 districts with the strategy of baseline survey, identification of problems, developing behavior change communication strategy in

lie with the outcome of the pilot programme implemented in five districts, implementation of behavior change communication strategy, monitoring and evaluation of anemia and it was implemented.

The initial phase was built an around three essential interventions

1. Weekly Iron and Folic acid Supplementation providing 100 mg of elemental iron and 500 Pg of folic acid for 52 weeks a year for prevention of nutritional anemia
2. Bi- annual Deworming prophylaxis (400 Pg of Albendazole) six months apart for the prevention of helminthic infestations
3. Information, Counseling and support to adolescent girls on how to improve the diets and to minimize the potential undesirable effects. (National Rural Health Mission).

NEED FOR THE STUDY

Adolescent would be the best investment for future. There are about 1.2 billion adolescents, a fifth of the world's population (2011 estimates), and 243 million estimated number of adolescents in India. About one-quarter of India's population is adolescents and in that 17.2 % of adolescent were in Tamil Nadu and their numbers are increasing.

The prevalence of anemia among adolescents is 27% in developing countries, and 6% in developed countries. In world health report of World Health Organization (WHO) states that the world wide mortality rate of iron deficiency anemia is 60,404,000 in 2005. National Family Health survey in 2006 showed that 56% of adolescent girls are anemic in India.Thereport shows that 2 billion people, over 30% of the world's population are anemic (WHO 2014) World health report of World Health Organization states that the mortality rate of iron deficiency anemia is1, 37, 04,953 cases in India 2005.Anemia is estimated to contribute to more than 115,000 maternal deaths and 591,000 prenatal deaths globally per year and according to family health survey statistics one in every five maternal death is due to anemia.India is one of the countries with very high prevalence of anemia in the world. Almost 58 per cent of pregnant women in India are anemic and it is estimated that anemia is the underlying cause for 20-40 per cent of

maternal deaths in India. India contributes to about 80 per cent of the maternal deaths due to anemia in South Asia.

The report says, the number of deaths due to anemia is 4894 and 1.5 deaths per 100000 populations (Deaths: Final data 2013). With an estimated 1.6 billion people globally suffering from anemia, several 100 million routinely manifest iron deficiency anemia. 40%-50% of the populations in developing nations remain anemic at all ages with the exception of non-elderly men (Nutrition articles and infographics 2014) Job Zachariah, Chief of UNICEF for Tamil Nadu and Kerala, estimates that the State could lose around Rs.8, 000 crore due to anemia because of loss of income of around Rs.5, 000per family per year due to reduced productivity and production. “Anemia leads to death in pregnant women, malnutrition, infection, and death of children and even reduces IQ and learning levels, which could lead to an increase in dropout levels”.(The Hindu July 11, 2015) The study was conducted on Prevalence of iron deficiency anemia among adolescent girls in 16 districts of India in 2006.The survey showed that 90.1% of adolescent girls are having iron deficiency anemia. In this 60.1% of adolescent girls were exposed to moderate iron deficiency anemia and 7.1% of adolescent girls were exposed to severe iron deficiency anemia.The prevalence of anemia has actually increased from NFHS-2 to NFHS-3. The percentage of children with any anemia increased from 74.3 per cent in NFHS-2 to 78.9 per cent in NFHS-3. In the period between the two surveys, there was an increase in the prevalence of mild anemia (from 23% to 26%) and moderate anemia (from 46% to 49%). In women the initial symptoms of iron deficiency anemia are unnoticeable. In severe cases there will be inadequate oxygen supply to major organs in the body. This will cause various health problems such as kidney failure, lung diseases, and cardiovascular diseases and ultimately it leads to death.

A study was conducted to estimate the prevalence of anemia among adolescent girls and to study the socio- demographic factors associated with anemia. Materials and methods: A cross sectional survey was conducted in selected Anganwadi centers of rural area of Hassan district. Three and Fourteen adolescent's girls (10-19 yrs old) were included in the study. The study was conducted from February to April 2011 (3 moths).Data analysis was done by

using proportions and Chi-square test. Results: Prevalence of anemia was found to be 45.2%. A statically significant association was found with iron deficiency anemia, weight loss and anemia, pallor and anemia. In the present study it was seen that among the 45.2% of anemic adolescent girls 40.1% had mild anemia, 54.92% had moderate anemia and 4.92% had severe anemia. Conclusion: A high prevalence of anemia among adolescent girls was found, which was higher in low economic status.

It was seen that anemia affects overall nutritional status of adolescent girls. (Int J Biol Med Res. 2011) A study was conducted at the faculty of family and community sciences included 100 adolescent girls with mild to moderate anemia. The aim of the study was to identify the effect of drumstick leaves and vitamin C supplementation for the improvement of anemia.Theselected samples were divided into two equal groups. Group A was given with drum stick leaf recipes and vitamin C whereas group B was provide with vitamin C alone for 45 consecutive days respectively. The result of the study showed that there was 28.6% reduction of anemia among group A and only 5 % reduction in group B. Therefore the study concluded that drumstick leaves had a major role in the reduction of anemia (Vanisha S Nambiar, 2008).

Early detection, management, nutrition awareness and dietary modification would reduce the severity of anemia. Various measures are undertaken to compact anemia among population of developing countries, like therapeutic supplementation of iron and folate tablets, fortification of diet with iron and various public health programs thereby creating awareness regarding the benefits of rich sources of iron (Sonjna, 2010).The researcher participated in the school health programme and during the physical examination she observed that most of the students have the symptoms of anemia and based on this information the researcher feels that it is important to prevent the anemia among adolescent girls in the homes. Hence the present study was undertaken with a view to evaluate the effectiveness of drum stick leaves juice in increasing haemoglobin level among adolescent girls with anemia.

When I was posted in pediatric ward, I observed many childrens look pale in conjunctiva, pale tongue, pale palm and inactive. So the children was diagnosed as anemia because they are not aware of food pattern regarding drumstick leaves and amla

STATEMENT OF THE PROBLEM

A study to evaluate the effectiveness of drumstick leaves extract with amla powder on anemic status among adolescent girls at C.S.I. Ruth Illam for girls Irungalur, Trichy.

OBJECTIVES

- To assess the level of anemic status among adolescent girls before and after intervention
- To evaluate the effectiveness of drumstick leaves extract and amla powder on levels of anemic status among adolescent girls
- To find out association between the pre testpost test levels of anemic statusamong adolescent girls with selected demographic variables

HYPOTHESES

H1; There will be a significant difference between the pre test and post test level of anemic status regarding the effectiveness of drumstick leaves extract and amla powder among adolescent girls.

H2; There will be a significant association between the level of anemic status among adolescent girls with selected demographic variables

OPERATIONAL DEFINITIONS

Effectiveness

The degree to which something is successful in producing a desired result

In this study it refers to which the administration of drumstick leaves extract with amla powder enhance the iron absorption and increased the level of hemoglobin.

Anemic status

WHO/UNICEF/UNU graded the anemic status

→ 10 to 11.9 g/dl is considered as mild anemia

→ 7 g/dl to 9.9 g/dl is considered as moderate anemia

→ Less than 7 g/dl is considered as severe anemia

→ 12 g/ dl is considered as Non anemic.

In this study anemic status it refers to Iron deficiency anemia hemoglobin level 10 to 11.9 g/dl is considered as mild anemia, 7 g/dl to 9.9 g/dl is considered as moderate anemia.

Drumstick Leaves Extract

The miracle of Moringa tree leaves (Moringa olefera)commonly called the drumstick tree and horseradish tree is native to india but has been planted around the world and is naturalized in many locales

In this study Drumstick leaves extract is prepared by boiling 1 kg of drumstick leaves with 4.5 liters of water and make it boil 45 minutes and strain it well. It will give 4 liters of drumstick leaves extract.

Amla powder

Indian Gooseberry commonly known as amla, is undoubtedly a power house of nutrients

In this study Amla powder which is extract from amla is a powerhouse of nutrients; it is rich in Vitamin C, calcium and iron; it helps in boosting your immunity naturally. Indian gooseberry, commonly known as amla, is undoubtedly a powerhouse of nutrients.

Adolescent Girls

The World Health Organization (WHO) defines adolescents as young people aged 10-19 years .(Adolescent health and development 2014)

In this study it refers to the girls refer belonging to the age group of 13 to 16 years

ASSUMPTIONS

The study assumes that,

- Adolescent girls are prone to develop iron deficiency anemia due to, insufficient iron in the diet and poor absorption of iron in the body.
- Most of the adolescent girls may not have adequate knowledge that amla enhance the iron absorption and increase the level of hemoglobin.

The need based health education programme may create awareness among the adolescent girls to make a confident to prevent anemia and its complication.

DELIMITATION

This study delimited to children who,

- The study will be conducted among adolescent girls who are in mild and moderate level anemic status at C.S.I. Ruth Illam for girls Irungalur, Trichy.
- The study will be limited to girls in the age group of 13- 16 years only.
- The study will be limited to those who are staying in hostel.

PROJECTED OUTCOME

The study findings will help to

- ❖ The study will help to identify the level of haemoglobin among adolescent girls.
- ❖ The study will help to evaluate the effectiveness of drumstick leaves extract with Amla Powder on the level of haemoglobin among adolescent girls in terms to prevent anemia
- ❖ This study will bring awareness among adolescent girls regarding the prevention of anemia.

CONCEPTUAL FRAMEWORK

Widenbach's theory:

The conceptual framework provides a conceptual perspective regarding the interrelating phenomena. It deals with abstractions (concepts) that are assembled by virtue of their relevance to a common theme. Conceptual models are useful in the research process in clarifying concepts and their associations, in enabling researchers to place a specific problem into appropriate context. The investigator adopted a Widenbach's prescriptive theory (1969) as the foundation for developing the conceptual framework. Ernestin Wiedenback proposes helping art of clinical nursing theory in 1969 for nursing, which describes a desired situation and way to attain it. Nursing is a helping service that is rendered with compassive skill and understanding to those in need of care, counsels and confidence is the area of health (1977)

Widenbach's theory is made up of three factors as follows,

- The central purpose
- Prescription
- Realities

CENTRAL PURPOSE

The central purpose defines that quality of health she desires to affect or sustain in her patients and specifies what she recognizes to be her special responsibility in caring of the patient. In this study the central purpose is to treat the iron deficiency anemia among adolescent girls.

PRESCRIPTION

Once the nurse identified her own philosophy and recognizes that the patient has autonomy and individuality, she can work with the individual to develop a prescription or plan of care. It will specify the nature of action that will fulfill the nurse's central purpose. A prescription may be voluntary or involuntary. A prescription is a directive to at least 3 kinds of voluntary actions. Mutually understood and agreed upon action (recipient and practitioner) Recipient-directed action and (ways in which to be carried out).Practitioner-directed actions (practitioner carried action).

In this study, the investigator planned to provide the drum stick leaves soup with amla powder among adolescent girls on iron deficiency anemia.

REALITIES:

The realities are:

- ❖ Agent
- ❖ Recipient
- ❖ Goal
- ❖ Means
- ❖ Framework

Agent: One who directs all action towards the goal and has capacities, capabilities, commitment, and competence to provide care. In thus study agent is the researcher who directs all the actions towards the goal.

Recipient: One who is vulnerable and dependent and receives all attention.

Here all the adolescent girls with the age group of 13 -16 years with the hemoglobin level between 7- 11.9 gm/dl.

Goals: It refers to the desired outcome of the action. Increase in hemoglobin level is the goal of the study.

Means: This refers to the activities or devices used to achieve the goal. In this study it is administration of drumstick leaves extract with amla powder in improving hemoglobin level among adolescent girls.

Frame work: It refers to the facilities in which it is practiced. Here it refers to C.S.I.Ruth ill am for girls Irungalur, Trichy.

The main concepts of Widenbach's nursing practice theory were,

- Identifying need for a help,
- Ministering needed help,
- Validating that need for help was met.

Identifying need for help:

It refers to the viewing the individual's unique experiences and perceptions. Identification involves assessment of hemoglobin level of adolescent girls.

Ministering the needed help:

It refers to the provision of the needed help. I this study it refers to the administration of drumstick leave extract with amla powder to the adolescent girls.

Validating that a need for help was met:

It refers to the restoration of functional ability through the implementation of action. Validation includes reassessment of hemoglobin level.

Projected outcome:

Administration of drumstick leaves extract with amla powder among adolescent girls will be effective in increasing hemoglobin level.

CENTRAL PURPOSE – ASSESS THE EFFECTIVENESS OF DRUMSTICK LEAVE JUICE WITH AMLA POWDER ON ANEMIC STATUS AMONG ADOLESCENT GIRLS

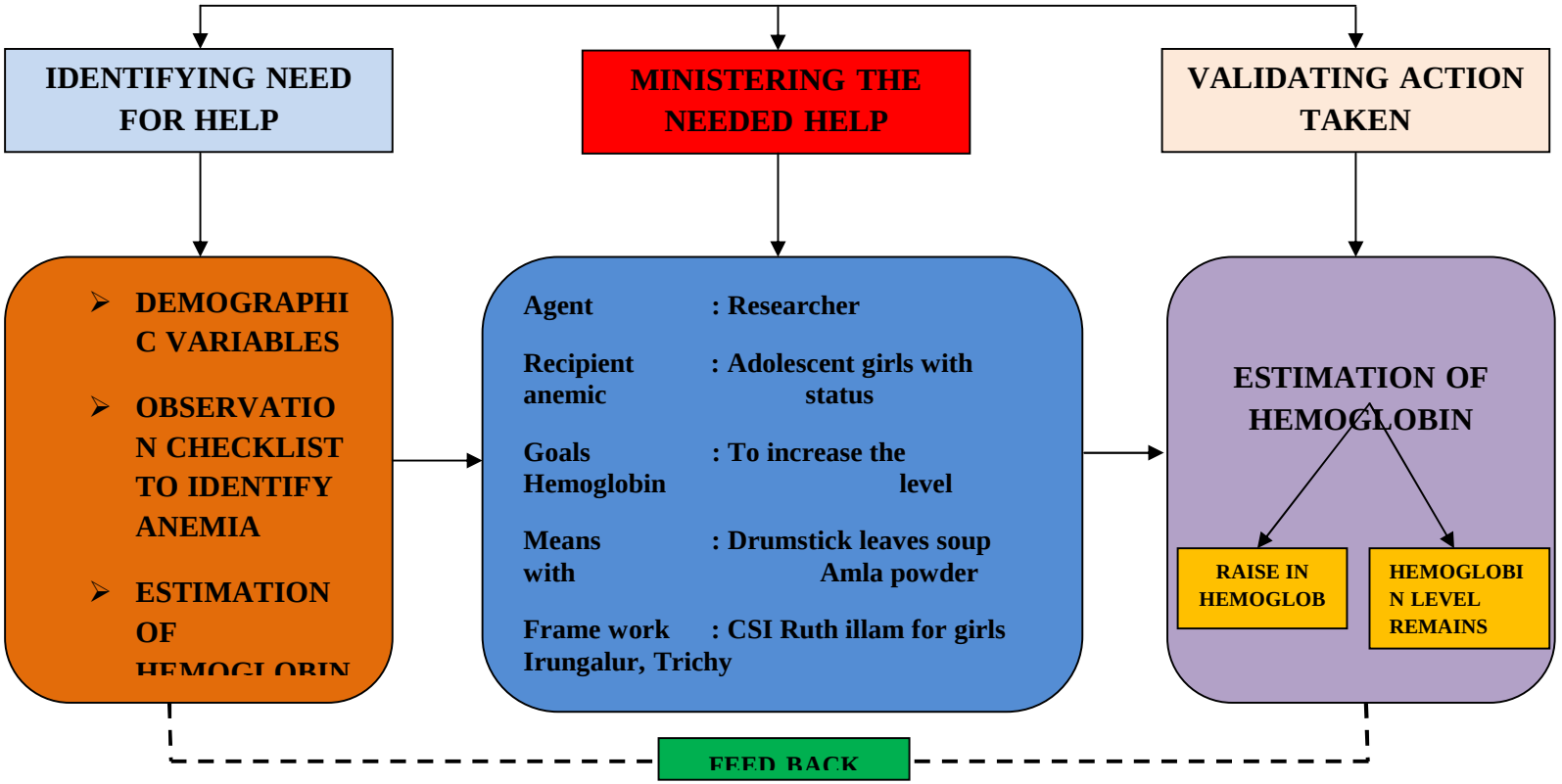


Figure 1 Widenbach's helping Art Theory (1964) A Study to Evaluate the Effectiveness of Drumstick Leave soup with Amla Powder in Improving Hemoglobin Level among Adolescent Girls

CHAPTER II

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

This chapter deals with the related review of literature which includes a written summary of existing knowledge on the research problem. The review of literature includes a broad, comprehensive, in depth systematic and critical review of scholarly print materials and personal communication in the study topics for the logical sequence.

The aim of this systematic review is to summarize the best available information regarding anemia. This chapter is organized in the following sections.

SECTION A: Literature related to the prevalence of anemia.

SECTION B: Literature related to drumstick leaves.

SECTION C: Literature related to effectiveness of Amla.

SECTION D: Literature related to the effectiveness ofamla powder and drum stick leaves.

SECTION A: LITERATURE RELATED TOTHE PREVALENCE OF ANEMIA

A study was conducted among prevalence of anemia, and iron deficiency among adolescent school children. Inadequate dietary intake, as well as the intestinal parasites, especially hookworm that is endemic in the study area, contribute to anemia and iron deficiency in this group. The results of our study highlight the need for intervention to improve the iron status in adolescents. (Lwambo, 2015; Tatala et al., 2015)

A study was conducted among 272 adolescent girls in an urban slum area under Urban Health Training center, department of Community Medicine, NKP Salve Institute of Medical science, Nagpur from June 2014 to February 2015. (Meenal VK, Durge PM, Kasturwar (2014). Out of five areas one area was selected by simple random sampling. Information regarding socio-demographic and menstrual factors was recorded in pre-designed, pre-tested Performa. Haemoglobin estimation was done by Sahli's haemoglobin meter. Data was analyzed by mean, standard deviation and chi square test. The study result shows that the prevalence of anemia was found to be very high (90.1%) among adolescent girls. Majority of the

girls were having mild or moderate anemia (88.6%).The study concluded that nutrition education along with nutritional supplementation and iron folic acid tablets should be provided to all girls.

A study was conducted among Iron deficiency is a global nutritional problem, which mainly affects infants, children, and women of childbearing age.(Halileh and Gordon, (2014) Usinganemia as an indicator of iron deficiency, an estimated 30-60% of women and children in developing countries are iron deficient. Even in developed countries, iron deficiency warrants significant public health concern (Halileh and Gordon, 2014). In developing countries, the main cause of iron deficiency is low iron bioavailability in diet. The consequences of iron deficiency are many and serious, affecting not only individuals' health but also the development of societies and countries. Prevention and control of iron deficiency in all age groups within societies with different iron requirements, necessitates coordination of various intervention programs.

A study to evaluate the results of studies that focused on adolescent girls and children; showed that anemia is a common problem among children aged 12-16yrs. (West Bank, 21%; Gaza, 19%) as reported by Halileh and Gordon, Lucy, 2015. Another study conducted by Care committee reflects that despite the levels of malnutrition, the prevalence of anemia among children 12-16yrs of age varies little between the West Bank (43.8%) and the Gaza Strip (44%). Four of every five children in both areas have inadequate serum iron levels

A study to evaluate theIron deficiency was relatively common in all studied age groups. The prevalence rates were (32.4%, 35.3%, 25.9%, and 12.1%) for children 6 to 8 years old, 9 to 11 years old, 12 to 14 years old and above 15 years respectively. Differences in prevalence rates were statistically significant ($P = 0.01$ at $D = 0.05$).These results clearly demonstrate the poor iron dietary intake by these children. Wharton, 2013

A study was conducted among adolescents are vulnerable to iron deficiency because of increased iron requirements related to rapid growth. Iron needs are highest in males during peak pubertal development because of a greater increase in blood volume, muscle mass and myoglobin. Iron needs continue to remain high in females because of menstrual blood loss, which averages about 20mg of iron per month, but may be as high as 58 mg in some individuals. Provan, 2015; Beard, 2015

A study was conducted among with respect to family size, the prevalence of iron deficiency was 20.1%, 33.2%, 23.2% and 19.6% among families with 1-3 members, 4-6 members, 7-9 members and more than 10 members, respectively. Clearly no link could be established between family size and iron deficiency as one might speculate that increased prevalence of iron deficiency would correlate with increased family size due to the fact that large families require more income to support nutritional needs. (Wharton, 2013;)

A study shows that higher prevalence of iron deficiency associated with increased family income. Our findings with respect to prevalence of iron deficiency and family income (24.9% low; 28.1% medium and 30.2% high income) are contradictory to the believe that poverty is a contributing factor to iron-deficiency anemia because families living at or below the poverty level may not be getting enough iron-rich foods. Again, one should mention that family behavior and social habits regarding eating and food types might contribute to these differences.(Halileh and Gordon, 2014)

A study was conducted about anemia more than 50% were not aware about anemia,73.5% & 92.6% young college girls were not having knowledge about its preventive & treatment measures. However after health education response for the same improved significantly i.e.89.7% became aware about anemia, 92.6% young college girls then knew about iron deficiency symptoms, 88.2% became aware for its preventive measures & 88.2% gained knowledge on its treatment part. Also in a study done in Haryana (SFWACF 2015) involving intervention to young girls it was seen that knowledge & awareness of the girls regarding anemia & iron rich foods increased. (Harsha Solanki, VibhaGosalia, FalguniVora, M. P. Singh (2013)

A study was conducted to anemia is the most prevalent nutritional deficiency disorder in the world. It affects all age groups but the most vulnerable are preschool-age children, pregnant women, and non-pregnant women of childbearing age. Globally, anemia affects 1.62 billion people, which corresponds to 24.8% of the population. The highest prevalence of anemia exists in the developing world where its causes are multi-factorial. National Family Health Survey statistics reveal that every second Indian woman is anemic and one in

every five maternal deaths is directly due to anemia. This review will focus on recent advances in our understanding of the burden of anemia in specific sub-groups, the causes and consequences of anemia among women. Jalandhar Cantt., Punjab, India (2014)

SECTION B :LITERATURE RELATED TO DRUMSTICK LEAVES

A study was conducted to identify the effects of Moringa Olifera leaves for the improvement of iron status among infants (6- 12 months) in Nigeria. Study conducted among 40 infants, for hemoglobin, serum ferritin, serum retinol, the group was assigned to test group and control group. The test group received maize traditional complementary food with Moringa Olifera and control group received only maize traditional complementary foods and the post assessment was done. The result showed a makeable increase in mean Hb from 10.65- 12.98 gm/dl among the test group.(NnamNgozi, 2014)

A study was conducted amongDrumstick leaves (DL) with its high beta carotene content (19690 mcg/100g) along with vitamin C from lemon juice may have a positive impact in the mobilization of stored iron and increase hemoglobin levels of anemic subjects. The study conducted to determine the effect of DL and vitamin C supplementation on hematological indices of young girls (16-21 years). Based on pallor, 100/700 girls studying in first and second year the Faculty of Family and Community Sciences were selected and assessed for hematological Indices (Hb, Hct, PCV, MCV, MCHC) and red cell morphology and were divided into Group A (329 RE of Beta carotene from DL rich recipes (boiled mung/desi chana/kabulichana) and 5.85 mg Vitamin C as lemon juice, n=21), Group B (329 RE from the above DL recipes, n=20) and Group C (recipes without DL leaves, n=21) for 45 days respectively. Post supplementation data revealed 28.6% reduction of anemia in Group A, by followed by 5% in group B and 4.7% in group C. There was a positive change observed in red cell morphology (normocytic normochromic) in Group A (18%) and B (2.6%) respectively.(ShilpaParnami, Parul Guin. 2013)

This study evaluated the effectiveness of dry Moringa oleifera leaf powder in the management of anemia in adult albino rats. The proximate, mineral, vitamin and phytochemical composition of dry Moringa Olifera leaf powder were analyzed. Twelve adult albino rats grouped into three were used. Cyclophosphamide was used to induce anemia into them. The percentage proximate values were protein (26.28%), ash (7.69%), carbohydrate (49.35%), crude fiber (7.48%) and moisture (7.05%). The rats whose feed were supplemented with Moringa Olifera leaf powder showed superior attributes to the UNsupplemented group.The study showed dry M.oleifera leaf powder is promising in the management of anemia. Women with anemia suffer from IDA. (Ugwuoke A. L. and Ezeugwu J. O., 2014)

A simple study was conducted a study to assess the effectiveness of nutritional intervention among women with anemia in Thiruvallur District total of 60 anemic adolescent girls aged 15-20 years. In which 30 anemia adolescent girls has control group. In pretest haemoglobin level was assessed. Interventions include Deworming, nutritional (iron rich) balls with vitamin “c’ rich food (guava) was administered for 30 days. The nutritional balls weighing 50 grams made up of Cowpea, Amaranth trusties, Roasted Bengal gram, Bajara, Gingly seeds and Jaggary. This ball gives 5.79 mg of iron and 100 grams of fresh guava contain 212 mgs of ascorbic acid. In post test the effect of nutritional intervention on the improvement of haemoglobin level was assessed among the women with anemia. Independent student “t” test was used to find out the effectiveness of nutritional intervention. The result showed that there was a reduction in the percentage level of 7-9 gms/dl in women from 30% to 3.3% and 60% to 86.7% in the range between 9-11 gms/dl in experimental group.(Dr. Jaya Mohanraj et.al., (2016)

A Study to evaluate the effectiveness of Moringa oleifera Lam., from Moringacaeae family is of importance to food and medical industries and widely grown in tropics and sub‐tropics. Its root, bark, pods, leaves are used in traditional medicine for the treatment of human diseases whereas pods and young leaves are used as vegetables . The leaves are highly nutritious, being a significant source of β‐carotene, Vitamin A, C, protein, iron, calcium and potassium. The leaves are cooked and used like spinach. Gram for gram, *moringa* leaves contains seven times the vitamin C found in oranges, four times the calcium and two times the protein found in milk, four times the vitamin A found in carrots, and three times the potassium found in bananas (Fahey 2015).

A studies related to drumstick leaves were used either fresh or in the form of extract. However, there are no scientific reports available on the use of DML in cookies, its effect on rheological, microstructural quality, and on the nutritional and quality characteristics of cookies. The results of the studies presented in this research article will be useful in utilizing *moringa* leaves in cookies, identifying maximum level of incorporation without adversely affecting the quality of cookies, and improving the nutritional characteristics of cookies.

A study was conducted the effect of drumstick leave powder is rich in protein, soluble and insoluble dietary fiber, and it also exhibits hypocholesterolemic and hypoglycemic properties. The commonality of dried *moringa* leaves (DML) and fenugreek seed powder is that both are good sources of protein and fiber. They reported that incorporation of fenugreek (*T. foenum – graecum*) seed powder up to 10% level produced acceptable quality biscuits. Wheat germ, a by‐product of roller flour milling industry, is highly nutritious. These data infers that both wheat germ and DML are highly nutritious in terms of protein, fiber and minerals; however, DML has an added advantage of being rich in β‐carotene also. Studies on the effect of replacement of wheat flour with DFWG at levels of 0–25% on functional and nutritional properties of cookies were investigated. They reported that cookies with increased protein, calcium, potassium and iron can be prepared by replacing wheat flour with 15% DFWG. (Singh and Kawatra (2015) developed recipes for nutritious biscuit, cake, Indian traditional snacks (*pakora*, *vada*, *namakpara* and *kurmura*) with the addition of fresh and dried powder of amaranthus leaves rich in iron andβ‐carotene. The products developed contained appreciable amounts of iron and β‐carotene.

A study related to drum stick leaves the vital minerals present in Moringa include Calcium, Copper, Iron, Potassium, Magnesium, Manganese and Zinc. It has more than 40 natural anti-oxidants. Moringa has been used since 150B.C. by ancient kings and queens in their diet for mental alertness and healthy skin. The leaves, pods, seeds, gums, bark and flowers of Moringa are used in more than 80 countries to relieve mineral and vitamin deficiencies, support a healthy cardiovascular system, promote normal blood-glucose levels, neutralize free radicals, provide excellent

support of the body's anti-inflammatory mechanisms, enrich anemic blood and support immune system. It also improves eyesight, mental alertness and bone strength. It has potential benefit in malnutrition, general weakness, lactating mothers, menopause, depression and osteoporosis. It is also used to make an efficient fuel, fertilizer and livestock feed. Moringa leaf has been purported to be a good source of nutrition and a naturally organic health supplement that can be used in many therapeutic ways (McBurney et al., 2015; Fahey, 2015; DanMalam et al., 2015)

SECTION C :Literature related to effectiveness of Amla

A study to evaluate the efficacy trial for both employers and employees(young working women 18 to 23 years of age) was undertaken to determine whether culturally acceptable dietary changes in lunches in the workplace and at home could bring about a behavioral change and improvement in their iron-deficiency anemia status. Maximum weight was given to increasing consumption of gooseberry juice. The 30-days interventions were supervised at the workplace. In Unit 1 (80 women) received 20 ml of gooseberry juice (containing 600 mg of vitamin C) with elemental iron 30mg daily for a month. Women in unit 2 (70 women), the positive control, received 400 mg Albendazole once plus ferrous sulphate tablets (30 mg elemental iron) daily No gooseberry juice was given.. The pre-post impact measures were dietary and nutrient intake, knowledge and practice, and haemoglobin status. In units 1, the haemoglobin status of the women improved significantly from 11.10 to 12.30 g/dl, 11.20 to 12.70 g/dl, and 11.50 to 13.00 g/dl, respectively. In unit 2, the values were 10.90 g/dl before and after intervention. It was concluded that the haemoglobin levels of the workers can easily be improved, that also lead to better employer-employee relations. Tara Gopaldas, (2016)

A study was conducted among one of the most common medicinal herbs has been widely used in ayurvedic medicinesAmla is a rich source of vitamin C, among 1 gm of vitamin C per 100 ml fresh juice, and requisite for the synthesis of collagen, which is liable for keeping the cells of the body together. It has the same amount of vitamin C present in two oranges. It increases the red blood cell count and helps to promote good absorption of iron. Numerous experimental evidences have shown that amla fruit possess antioxidant, hepato protective, hypocholesterolemic and anti-inflammatory activities.(Department of Biochemistry & Biotechnology, Annamalai University, (2016); Phyllanthus *emblica* (amla)

*A study to evaluate theEmblicaOfficinalis*is a natural, efficacious, an antioxidant with the richest natural source of Vitamin C. *Emblica Officinalis*berries have the highest amount of naturally occurring vitamin C of any ripe fruit in the world used as atraditional food. Numerous studies conducted on *Emblica Officinalis*fruit suggest that it has anti-viral properties andalso functions as an anti-bacterial and anti-fungal agent. The gelatinous plum-sized Amla fruit contains naturallyoccurring vitamin, heat stable vitamin C. A clinical study on patients with pulmonary tuberculosis showed that the vitamin C contained in Emblica*Officinalis*was better assimilatedthan synthetic vitamin C.

Further research of contemporary and traditional medical literature indicates that *Emblica Officinalis*either in combination with otherherbs or alone has been useful in the amelioration of colds, warts, skin afflictions, influenza, anemia, diabetes, lung conditions, elevated cholesterol and as an immune restorative in cancer conditions. (Department of Pharmaceutical sciences, Coimbatore medical college,Coimbatore, (2015)

A study States that effectiveness of gooseberry supplementation in prevention of anemia among antenatal mothers at the selected hospitals in Kerala. A sample consists of 60 primigravid mothers and multi gravid 30 in experimental and 30 in control group was chosen by purposive sampling technique was used for this study. The result of the study shows that post test results showed that the level of anemia in experimental group 29 (96.7 %) had mild anemia, one (3.3%) had moderate anemia and no women had severe anemia, and in control group 25 (83.3%) had mild anemia, five (16.7%) had moderate anemia and nobody had severe anemia. The level of practice among antenatal women in first trimester showed that 23 (76.7%) were moderately practice, 7 (23.3%) were adequately practice and no one had inadequate practice.MukeshDeshmuckh et al; (2014)

A study was conducted to evaluate theeffectiveness of a weekly regimen among slum and tribal of Nasik district, Maharashtra, India. The study was conducted to reveal the improvement ofconsuming vitamin C foods to improve the haemoglobin levels. The participants from Baroda city were given a mixed diet in a hotel with vitamin C rich guava, citrus fruits, lemon juice. At the end of nine months interventional trail, there was a very significant rise in

haemoglobin levels of the study participants.Literature related to iron deficiency anemia and changing dietary behaviors among adolescent girls.(Deshmukh, P.R.et.al., (2014)

Thisstudy which was started in year 2016 involved 280 respondents (223 girls, 57 boys,age: 16 yr) from schools in Tanah Merah. The selection criteria were based on Haemoglobin level (Hb = 7 - 11.9 g/dL for girls; Hb = 7 - 12.9 g/dL for boys). They were divided into 2 groups. The first group received nutrition education package, whereas another group was entitled to receive non-nutrition education intervention. Both interventions were implemented for 3 months. The changes in awareness among respondents of both groups were evaluated using multi-choices questionnaire. Nutrition education receiver group demonstrated improvement in awareness at post-intervention. No substantial improvement was demonstrated by the counterpart group. Wan NudriWanDaud.,Zulkifli Ahmad. (2016)

A study was conducted to assess the effectiveness of Nutritional intervention on Anemia among adolescent girls with iron deficiency anemia in Nachiyampalayam at Dharapuram, Tamil Nadu. A sample of 50 adolescent girls.The samples that had less than 11gms of Haemoglobin. Samples were visited every day in their homes and made to consume nutritional balls and one guava. After 30days the study result shows that in before nutritional intervention among 50 adolescent girls with iron deficiency anemia depicts that 8(16%) had mild levels of anemia, 33(66%) had moderate levels of anemia and 9(18%) had severe levels of anemia. In the after nutritional intervention 29(58%) had mild levels of anemia and 21(42%) had moderate levels of anemia. the mean scores of pre test and post test level of anemia among adolescent girls 14.828 (SD + 1.16) and 13.54 (SD + 0.55) respectively. Thus the difference in pretest and post-test mean was 1.29. NeebaAniyan. (2016)

A study to evaluate the daily requirements of iron are 1-3 mg/day; these requirements increase during the growth period, Because gastrointestinal absorption of iron is limited, the diet must contain between 15 and 30 mg/day. Efforts should be focused on promoting the access to iron-rich foods (e.g., meat and organs from cattle, fowl, fish, and poultry, and nonanimal foods such as legumes and green leafy vegetables) and foods that enhance iron absorption (some fruits, vegetables, and tubers). Aspuru, K., Carlos Villa.,Bermejo, F., Herrero, P., et al. (2015)

A study was conducted to determine the impact of nutrition education intervention on the haemoglobin status of 60 anemic rural adolescent girls aged between 13-16years for three months. Experimental and control of 30 groups each. The experimental group was further divided into two groups as student communicators (n=10) and student communicators (n=20). The student communicators were given three days nutrition education training by nutrition experts on the identified areas using the educational materials like charts, posters, blow-ups, messages and power point presentations on the importance of iron. The communicators were asked to pass on the information to communicate group. The pre and post scores of the experimental and control groups were assessed. The student t-test showed significant difference between the mean knowledge within theexperimental group. In the communicators group, a significant increase (7.70%) in the haemoglobin level was observed. Hence, from the study it can be concluded that, nutrition education is one of the appropriate, effective and sustainable approach to combat iron deficiency anemia. Kasturiba., Rama, K. Naik., Pushpa, C,. Bharati. (2016)

A study showed that breakfast with cereals; whole wheat breads and legumes contain iron, however this is non-heme iron which is not easily absorbed. To increase iron absorption from these food sources, the centre recommends the addition of Vitamin C such as the introduction of orange juice or other fruits (Centre for Young Women's Health, Children's Hospital Boston, 2012-2016). As we mentioned earlier non-hem sources of iron such as legumes constitute a major source of iron and inclusion of enough amounts of vitamin C is essential to insure a proper absorption of iron. The observed practices of the parents do not reflect this attitude as only 24.8% of the iron deficient students seems to take fruit juice.

SECTION D :Literature related to the drum stick leaves extract with amla powder an enhance of iron absorption

A study to evaluate the factors inhibiting iron absorption was explained(phytate, polyphenols, oxalate, phosphates, calcium and zink) either bind with iron, making it less soluble, or compete for binding sites. Phytates, polyphenols, oxalate and phosphate block iron absorption such as in whole cereal

grains; tea, coffee, nuts; spinach and egg yolk; respectively. Iron-binding phenolic compounds (tannins) present in black, green and herbal tea are not at risk of iron owing to any kind of tea drinking for healthy adults. Dairy products rich in calcium such as milk or cheese can inhibit iron absorption.

A study was conducted to assess the effectiveness of iron absorption , the samples(500), the number of anemic girls had reduced from 141 before the intervention to 79 after - mean haemoglobin increasing from 12.2 to 13.0 ($p < 0.001$) and in the 279 paired samples prevalence of anemia had reduced from 105 to 58 - mean haemoglobin increasing from 12.1 to 13.0 ($p < 0.001$.(Mennen et al., 2014)..

A study conducted among decreasing the dosage and frequency of iron supplementation is another strategy being promoted to improve the effectiveness of iron supplementation. In recent years, a number of study results have suggested that weekly iron supplementation was as effective as daily iron supplementation in raising Hb levels, in various groups at risk of iron deficiency anemia, and that the smaller dose administered in the intermittent regime was associated with fewer side-effects and thus better compliance. The effectiveness of the intermittent dosage regime has also been challenged, with the main argument that based on the calculated increased physiological iron requirements, sufficient iron could not be supplied by the weekly regime.(Liu. 2014; Ridwan., 2014; Schultink& Gross, 2014)

A study to conduct among tea influences the absorption of non-heme iron as hemeiron is relatively unaffected by tea. Many studies reflect that there is a higher risk of anemia amongst tea drinkers compared to none tea drinkers. Only in populations with marginal iron status seems to be a negative association between tea consumption and iron status. Our findings are consistent with these conclusions since 39.7% of iron deficient students drink too much tea, and 24.3% of them drink it in moderate amount, which make them more susceptible to iron deficiency(Doyle et al., 2013)

A study to evaluate the hookworm infection is endemic in many tropical countries, and chronic blood loss due to hookworm is a significant contributor to anemia, particularly moderate and severe anemia. The degree of iron deficiency anemia due to hookworm depends on the content and bio-availability of iron in the

diet, the size of body iron stores, and the intensity and duration of the infection. Trichuristrichura, Schistosoma haematobium, and Schistosoma mansoni may also contribute, but in isolation they are unlikely to result in severe anemia.(Stoltzfus et al., 2013)

A study conducted among the anemia is reported to be the largest nutritional problem among adolescents in developing countries. In this study, adolescent girls were more anemic than boys due to not wearing cheppels for their regular work. Only post-menarche girls were included and thus the findings reflect the increased requirement for iron in girls as a result of menstruation and not wearing cheppelsregularly.However, in both groups more than fifty percent of the anemic and non-anemic groups were iron-deficient.(Kurz, 2016)

A study to evaluate the Periodic de-worming through the school system is another approach that is recommended in areas with high hookworm prevalence. In Zanzibar, 4-monthly school based de-worming was found to reduce the incidence of severe anemia (Hb <7g/dl) by 55%. In addition, the school system should be utilized to promote anemia-preventive activities in the communities (.Stoltzfus et al., 2015)

A study to evaluate prolonged intermittent regime might be of benefit to non-pregnant women and adolescents , although it is also suggested that further, better-designed, studies are needed to resolve the issue of intermittent versus daily dosages. In addition, whatever dosing schedule is adopted, the fundamental problems - lack of supplies, inadequate knowledge of health workers, and poor counseling of women - have to be addressed in order to improve the effectiveness of iron supplementation programmes.(Agdeppa-Angeles, 2014; Bothwel, et al. 2014)

A study to evaluvate the factors promoting iron absorption was increased (ascorbic acid, citric acid, lactic acid, fructose and peptider from protein sources) enhance the solubility of the iron, facilitating absorption. The absorption of non-haem iron can be improved when a source of haem iron is consumed in the same meal. The previous studies results show that the most important enhances of non-haem iron absorption are ascorbic acid (vitamin C), meat and fish.Geissler& Powers, 2013; Barasi,. 2014)

Astudy to conducted among severalfoods such as amla, guava and citrus fruits, which promotes iron absorption from plant foods. Evidence also exists that the promotion of iron absorption of vitamin C mainly from fruits, juices, potatoes and some other tubers, and other vegetables such as green leaves, cauliflower, and cabbage. The prevalence of anemia was found to be 78.75% among school students. Chi-square statistics shows significant association ($p<0.05$) of anemia is with type of family, socioeconomic status and diet. Thuy, 2013; Thuy., 2015; Geissler& Powers, et al. 2015;

A study was conducted among adolescent girls residing in 16 slums of Pune. The main objective was to increase the number of daily meals adolescent girls eat from 2 meals to 3-4 meals, and to encourage girls to consume iron rich foods on a daily basis.Weekly iron and folic acid tablets were given in the first 3 months; Blood samples were collected at baseline and end of the study, and haemoglobin was estimated. Findings showed that anemia is significantly more likely among girls who eat two or fewer meals in a day, have been sick in the past year, and consume few iron rich foods. Institute of Health Management Pachod, Pune. (2014)

CHAPTER III

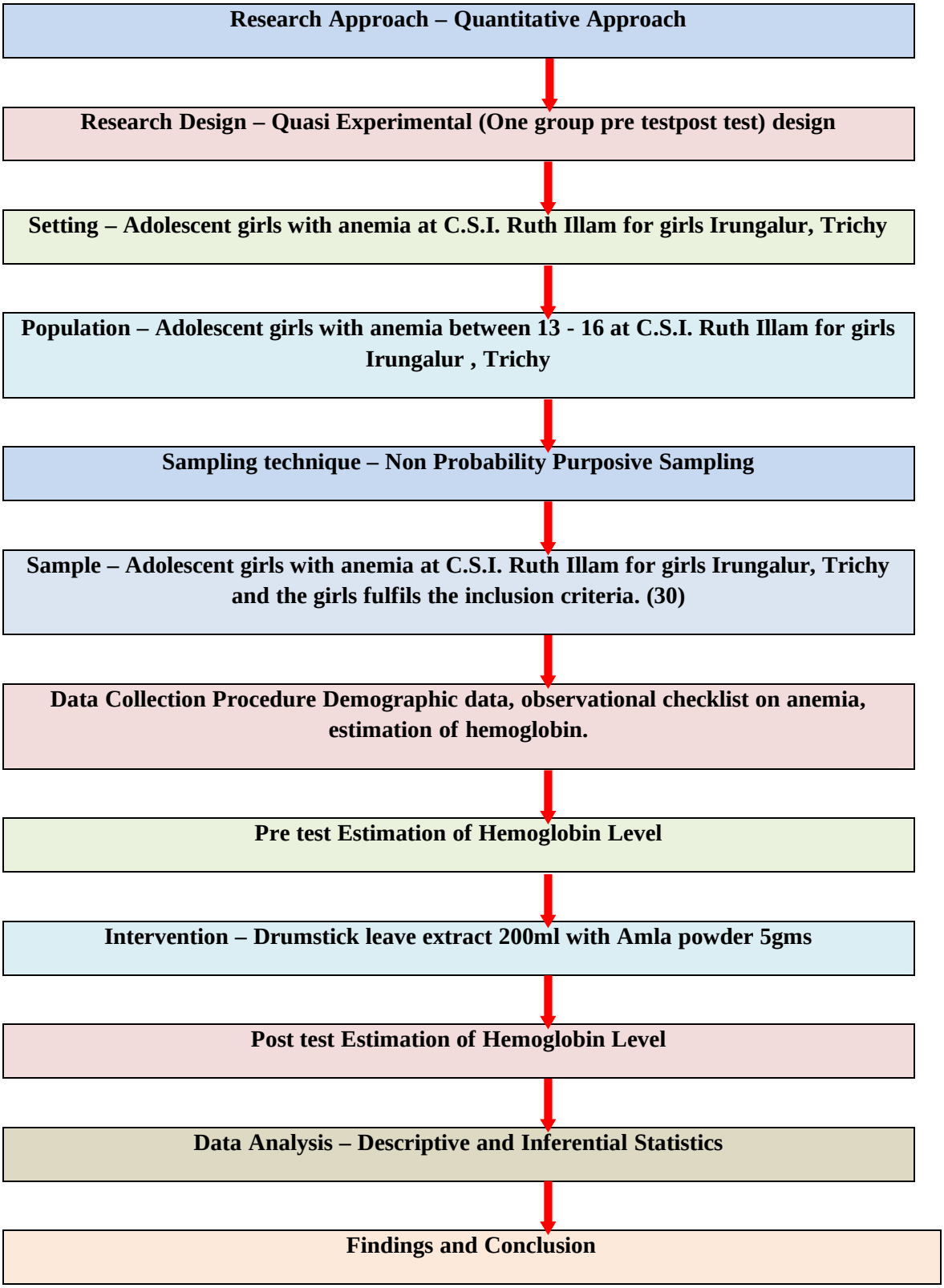
METHODOLOGY

CHAPTER III

METHODOLOGY

Research methodology is a science of study how research is done scientifically and itis a systemic way to solve the problems effectively which enables the researcher to project the research undertaken. This chapter deals with the research approach, research design, variables, settings, sample and sampling technique, description of the instrument, content validity of the tool, pilot study, data collection procedure, plan for data analysis and protection of human rights. This present study was done to assess the effectiveness of drumstick leaves juice to improve the hemoglobin level of an adolescent girls.

Figure 2 Schematic Representation of Research Design



RESEARCH APPROACH

Quantitative research approach was used for this study

RESEARCH DESIGN

The research design selected for the study was quasi experimental design adopted with one group pre- test post- test design.

GROUP	PRE TEST	INTERVENTION	POST TEST
E - Research Group	O_1	X	O_2

KEY,

E = Research Group

O_1 =Pre-assessment of hemoglobin level

X = Administration of drumstick leaves soup with amla powder

O_2 = Post-assessment of hemoglobin level

RESEARCH VARIABLES

INDEPENDENT VARIABLE

The independent variable for this study is Drumstick leaves soup with amla powder

DEPENDANT VARIABLE

The dependent variable for this study is Hemoglobin level

BASELINE VARIABLE

The baseline variable for the study is Age, educational status, religion, type of family, no of siblings, monthly income of the family, source of information, menstrual history, dietary pattern and hygienic practices.

SETTING OF THE STUDY

The setting was selected based on acquaintance of the investigator with the institution, feasibility of conducting the study, availability of the sample,

Permission and proximity of the setting to investigation. The study was conducted at C.S.I.Ruth Illam for girls, Irungalur, Trichy. There are 50 adolescent girls staying in the hostel. Keeping in mind, the time available for data collection and familiarity to the area, the investigator has chosen these settings.

POPULATION

Adolescent girls with Iron deficiency anemia aged 13 to 16years.

TARGET

The target population of this study was comprised of all the adolescent girls with iron deficiency anemia aged 13to 16 years.

SAMPLING TECHNIQUE

Non probability Purposive sampling was used to select the sample for the study.

SAMPLES

The samples selected for this study were Adolescent's girls with iron deficiency anemia who were staying in the hostel at C.S.I. Ruth Illam for girls Irungalur, Trichy.

SAMPLE SIZE

Sample represents the adolescent between the age group of 13-16years. The sample size for this quasi experimental study was arbitrarily determined to be 30 adolescent girls.

CRITERIA FOR SAMPLE SELECTION

The samples were selected based on the following inclusion and exclusion criteria

INCLUSION CRITERIA

1. Adolescent girls with the age group of 13 - 16 years.
2. Those who are staying at C.S.I.Ruth Illam for girls Irungalur, Trichy.
3. Adolescent girls with iron deficiency anemia with level of 7gms to 11.9gms.
4. Girls who are willing to participate.

EXCLUSION CRITERIA

1. Persons who are having hemoglobin level less than 7gms and 12gms and above
2. Girls who are having any other blood disorders such as sickle cell anemia, hemophilia, and thrombocytopenia.
3. Girls who are under treatment of iron supplements, and staying in the home.

DEVELOPMENT OF AN INSTRUMENT

After intensive library search and consultation with experts and with the personal and professional experience, an observational checklist was prepared to assess the prevalence of anemia and well-structured questionnaire to collect the demographic data of the adolescent girls were developed.

DESCRIPTION OF THE INSTRUMENT

The tool for data collection consist of 3 parts

Part 1: Demographic data

Consist of 10 questions about demographic variable such as age, educational status of father, educational status of mother, religion, type of family, no of siblings, monthly income of the family, source of information, menstrual history, dietary pattern and hygienic practices.

Part 2: Observational checklist

An observational checklist consists of 20 items which used to assess the signs and symptoms of anemia among adolescent girls through clinical assessment. There were 20 items pertaining to the conditions related to anemia such as 1) Shortness of breath, 2) Dizziness, 3) Palpitation, 4) Loss of appetite 5) Numbness or coldness in your hand and feet 6) Fatigue 7) Hair loss 8) Headache 9) Angular cheilitis (inflammatory lesions at the mouth's corners) 10) Pale conjunctiva 11) Pale tongue 12) Pale nail 13) Pale skin 14) Koilonychias (spoon-shaped nails) 15) Nails that are weak 16) Nails that are Brittle, 17) Problems concentrating or thinking 18) Heavy menstrual bleeding, 19) Normal capillary refilling, 20) Delayed capillary refilling.

Part 3:

Clinical assessment of haemoglobin level estimation of adolescent girls before and after intervention.

SCORING PROCEDURE

As per the WHO/ UNICEF, the estimation level of haemoglobin

Mild anemia -10.1 to 11.9 gm%

Moderate anemia -7 to 10 gm %

Severe anemia - < 7 gm %

Normal - 12 gm % and above

VALIDITY OF THE TOOL

The content validity of the tool was obtained from 5 experts including 3nursing experts, 1 Biostaticians and 1 pediatrician. Based on their valid suggestions, a few items were modified and the final tool was prepared as per the suggestions given by the experts. The tool was drafted in English. The Tamil translation was done by a Tamil expert and language validity was established.

RELIABILITY OF THE TOOL

Reliability was established through test - retest method. The tool was administered to 30 adolescent girls at C.S.I. Ruth Illam for girls Irungalur, Trichy. After the gap of 15 days, the retest was done. The Karl Pearson's coefficient of correlation was computed and the reliability was found to be 0.96. The tool was found to be reliable.

DATA COLLECTION PROCEDURE

Data collection is the process of gathering information needed to discuss a research problem. Data collection was done for the period of 4 weeks. Before commencing the special project, the permission to conduct the study should obtained by the list of hostel children was obtained from the warden and the samples were short listed based on sample selection criteria using non probability purpose sampling technique.30 adolescent's girls were selected. The investigator initially had a rapport with the sample and the purpose of the study was explained to each

with informed consent, the demographic data have been collected by using well-structured questionnaire and clinical assessment was done as per observation checklist and estimation of haemoglobin level among adolescent girls were tested by biochemical method in the clinical laboratory by the technicians.

On the 1st day onwards, the drumstick leaves extract 200 ml with 5gm Amla powder was prescribed by the medical officer was given before food to the sample for 15 days and after that on 16th day, the post test was done by the assessment of haemoglobin.

PLAN FOR DATA ANALYSIS

The demographic data were analyzed by using descriptive measures (Frequency and percentage).Prevalence of anemia and haemoglobin level was analyzed by using descriptive measures (Mean and SD). Effectiveness of drumstick leaves extract with Amla Powder was analyzed by using paired "t" test. The association between haemoglobin levels with their selective demographic variables among adolescent girls was analyzed by using inferential statistics (chi square- F2 test).

PILOT STUDY

The pilot study was conducted during the month of March 2018 among 10 adolescent girls in homes at Shanthi Illam Ladies Hostel, Teppakulam, Trichy, to evaluate the effectiveness of the drumstick leaves soup with Amla Powder and to find out the feasibility of conducting the main study. The well- structured questionnaire and observational checklist was used for data collection. The time taken to complete tool was found to be satisfactory in terms of simplicity and clarity. The administration of the tool and intervention were implemented. The feasibility and the availability of the sample and cooperation of respondents, accessibility of setting and financial requirement was established. Pilot study helped the investigator to confirm the feasibility of carrying out the main study.

ETHICAL CONSIDERATION

Approval from the research committee and concerned authorities was obtained. Each individual was informed about the purpose of the study and confidentiality was promised and ensured. The client has the freedom to leave the study at their wish without assigning any reason. Thus the ethical issues were ensured in this study.

PROTECTION OF HUMAN RIGHTS

The research proposal is approved by the dissertation committee prior to the pilot study and the main study permission was sought from the Correspondent of C.S.I Ruth Illam for Girls, Irungalur, Trichy. A formal consent was obtained from the respondents of the study (adolescent girls) before administering the questionnaire

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the data. In this study, the effectiveness of drumstick leaves extract with amla powder in improving haemoglobin level among adolescent girls was assessed. The data were collected through observational checklist among adolescent girls regarding signs and symptoms of anemia. This result was computed using descriptive and inferential statistics based on the objectives of the study. The findings of the study are presented in this chapter under the four sections as follows:

ORGANIZATION OF DATA

Section A: Assessment of demographic variables of adolescent girls with mild and moderate anemia.

Section B : Assessment of pre and post test level of hemoglobin level among adolescent girls with anemia.

Section C : Association between, the post interventions level of haemoglobin among adolescent girls with anemia with selected demographic variables.

PRESENTATION OF DATA

SECTION: A

Assessment of demographic variables of adolescent girls with mild and moderate anemia

S. NO	DEMOGRAPHIC VARIABLE	Frequency (f)	Percentage (%)
1	Age in years		
	a) 13yrs	1	3.3
	b) 14yrs	17	56.7
	c) 15yrs	7	23.3
	d) 16yrs	5	16.7
2	Religion		
	a) Hindu	11	36.7
	b) Christian	19	63.3
3	Number of siblings		
	a) One	11	36.7
	b) Two	16	53.3
	c) Above two	3	10.0
4	Birth order		
	a) First child	14	46.7
	b) Second child	9	30
	c) Later	7	23.3
5	Type of family		
	a) Nuclear	14	46.7
	b) Joint	16	53.3
6	Monthly income of the family		
	a) <5000	27	90
	b) >5000	3	10
7	Educational qualification of father		
	a) Illiterate	3	10
	b) Primary school	17	56.7
	c) High school	3	10
	d) Higher secondary School	7	23.3

8	Educational qualification of mother a) Illiterate b) Primary school c) High school d) Higher secondary school	 2 20 4 4	 6.7 66.7 13.3 13.3
9	Occupation of father a) Government employee b) Daily wager	 3 27	 10 90
10	Occupation of mother c) Government employee a) Daily wager	 3 27	 10 90
11	Type of diet a) Vegetarian b) Non vegetarian c) Mixed	 1 28 1	 3.3 93.3 3.3
12	Age of menarche a) < 0 years b) 10-12 years c) 12 years	 22 6 2	 73.3 20 6.7
13	Pattern of menstruation a) Regular b) Irregular	 21 9	 70 30
14	Flow of menstruation a) Normal b) Heavy	 18 12	 60 40
15	Days of menstruation a) 1-3 days b) 3-5 days	 13 17	 43.3 56.7
16	Have you done deworming before a) No b) Yes	 13 17	 43.3 56.7
17	use chapels when you go to toilet a) Yes b) No	 18 12	 60 40

18	Do you wash your hands with soap and water after each defection a) Yes b) No	 27 3	 90 10
19	Consumption of green leafy vegetables a) 1-3 times a week b) 1-3 times in Two weeks c) Once a month d) Occasionally	 1 8 11 10	 3.3 26.7 36.7 33.3
20	Consumption of citrus fruits e) 1-3 times a week f)1-3 times in two weeks g) Once a month h) Occasionally	 1 1 19 9	 3.3 3.3 63.3 30
21	Consumption of ragi a) 1-3 times a week b) 1-3 times in two weeks c) Once a month d) Occasionally	 1 1 9 19	 3.3 3.3 30 63.3
22	Intake of beverages coffee tea a) Once a day b) Twice a day c) More than twice a day d) Occasionally	 24 4 1 1	 80 13.3 3.3 3.3
23	Sources of information regarding prevention of anemia a) Mass media b) Books and magazine c) Relative and peer groups d) Health personal	 1 1 2 26	 3.3 3.3 6.7 86.7

The above table reveals according to the age distribution among adolescent girls, 1 (3.3%) of them were 13 years old, 17 (56.7%) of them were 14 years old,7 (23.3%) of them 15 years and 5 (16.7%) of them were in 16years.

In the aspect of educational qualification of father, illiterate 3 (10%) ,primary school 17 (56.7%),high school education 3 (10%) ,higher secondary education 7 (23%).

In the aspect of educational qualification of mother, illiterate 2 (6.7%), primary school 20 (66.7%),high school education 4 (13.3%) ,higher secondary education 4 (13.3%),

Based on the monthly family income, 27 (90%) students father's had monthly income of Rs .<5000 and 3 (10%) students father's had monthly income of >5000

Regarding the type of family, 14,(46.7%) were from nuclear family , and 16 (53.3%) of them were joint family.

Regarding the numbers of siblings of the family, one 11 (36.7%), two 16 (53.3%) above two3 (10%) children in the family .

Regarding the type of diet, 1 (3.3%) were vegetarian and remaining 28 (93.3%) were consuming non-vegetarian 1 (3.3) were mixed type of diet

Regarding the habit of beverages taking tea/coffee, once a day 24 (80%), twice a day 4 (13.3%), more than twice a day 1 (3.3%) occasionally 1 (3.3%).

Regarding the religion, Hindu11 (36.7%), Christian19 (16.3%).

Regarding the birth order, first child 14 (46.7%), second child 9 (30%), later 7 (23.3%).

Regarding the occupation of father, government employee 3 (10%), Daily wager 27 (90%)

Regarding the occupation of mother, daily wager 27 (90%) and in government employee 3 (10%)

Regarding the Age at menarche, less than 10 years 22 (73.3%), 10-12 years 6 (20%), more than 12years,2 (6.7%).

Regarding the Patten of mensuration, regular 21 (70%) irregular 9 (30%) of them. Regarding the Flow of mensuration, normal 18 (60%), heavy 12 (40%) of them Regarding the days of mensuration, 1-3 days 13 (43.3%), 3 -5 days 17 (56.7%) of them.

Regarding the deworming, yes 25 (83.3%) no 5 (16.7%) of them.

Regarding the uses of chapels when you going to toilet, yes 18 (60%) of them and no 12(40%) of them .

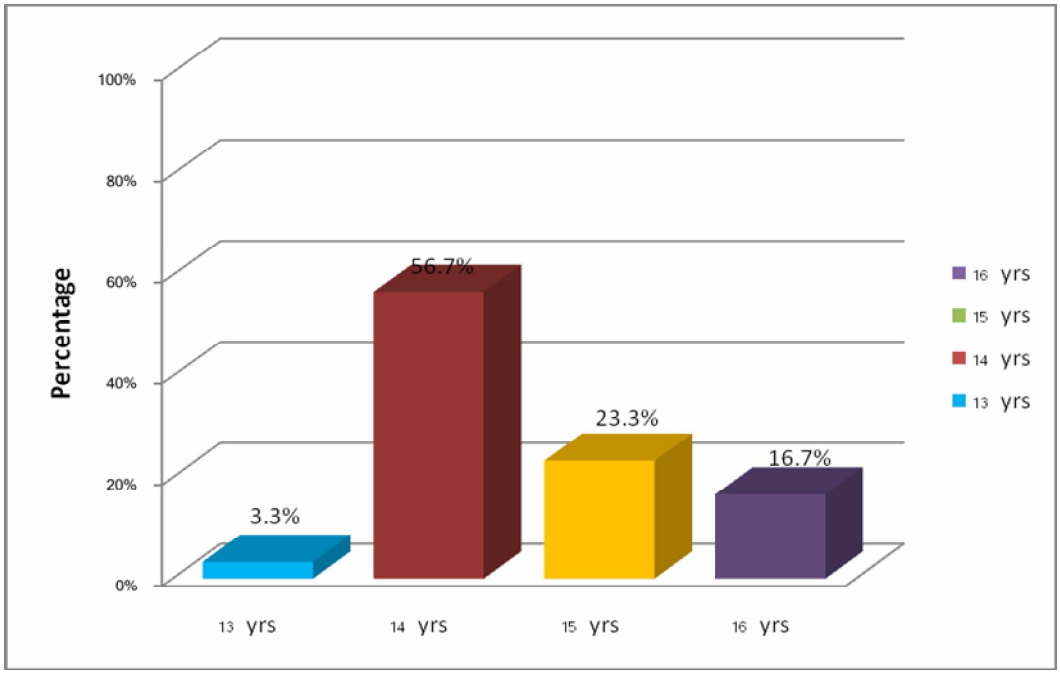
Regarding the wash your hands with soap and water after defecation, yes 27 (90%) of them and no 3 (10%)

Regarding the consumption of green leafy vegetables, , 1-3 times a weeks1 (3.3%), 1-3 times in two weeks 8 (26.7%) once a month 11 (36.7%), occasionally 10(33.3%) of them Regarding the consumption of citrus fruits, 1-3 times a weeks1 (3.3%), 1-3 times in two weeks 1 (3.3%) once a month 19 (63.3%), occasionally 9 (30%) of them.

Regarding the consumption of ragi, 1-3 times a weeks1 (3.3%),%), 1-3 times in two weeks1(3.3%), once a month 9 (30%), occasionally 19 (63.3%) of them.

Regarding the sources of information regarding prevention of anemia, mass media 1 (3.3%) books and magazines 1 (3.3%) relatives and peer groups 2 (6.7%) health personal 26 (86.7%) of them.

PERCENTAGE DISTRIBUTION OF DEMOGRAPHIC VARIABLES



AGE

Figure 1 :Percentage distributions according to age in years among adolescent girls on iron deficiency anaemia

The above column diagram,shows that 1 (3.3%) subject were 13 years old, 17 (56.7%) of them were14 years old, 7 (23.3%) of them were 15 years and 5 (16.7) of them were in 16 years of age

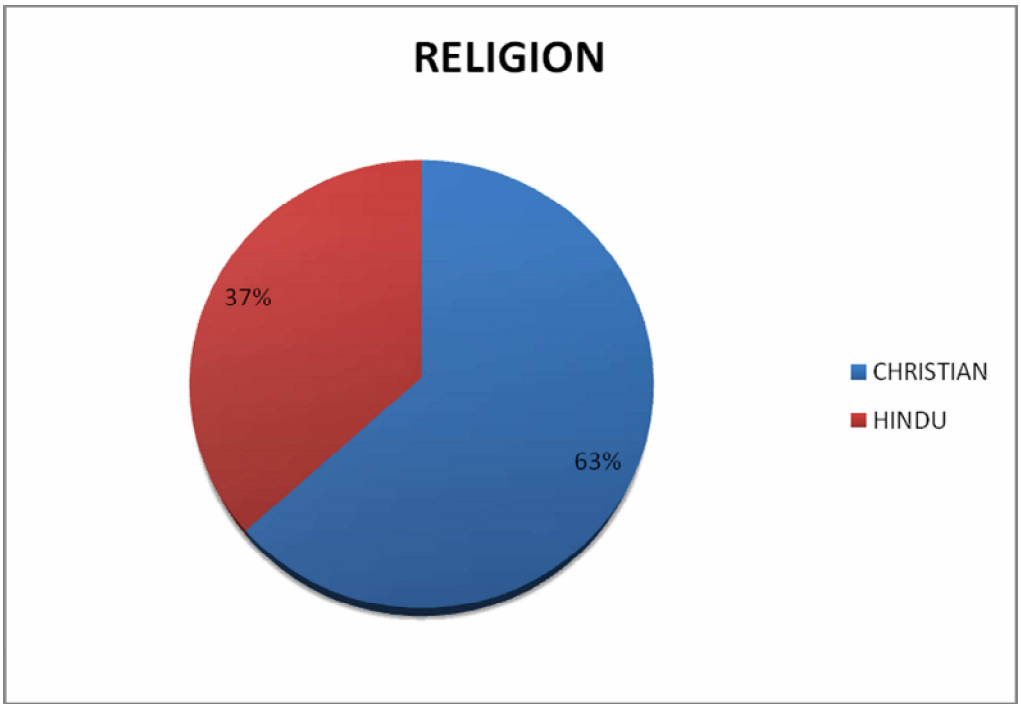


Figure 2 : Percentage distribution of religion among adolescent girls on iron deficiency anaemia

The abovecolumndiagram shows that the percentage wise 11 subjects (36.7%) belongs to Hindu background, and 19 (63.3%) of them belongs to Christian.

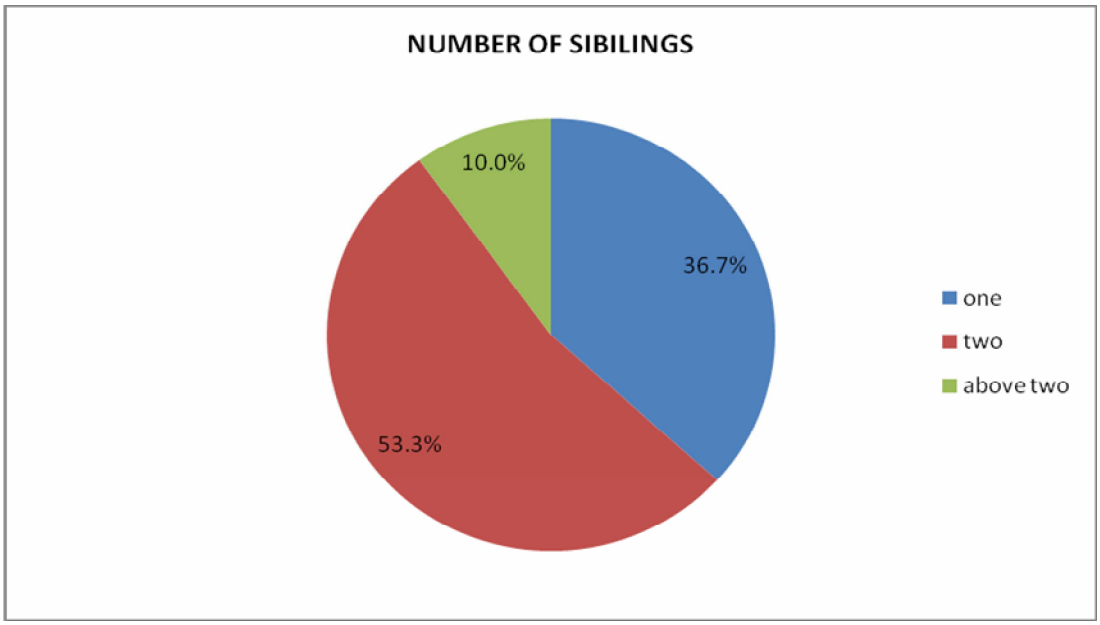


Figure 3 : Percentage distribution of number of sibilings among adolescent girls on iron deficiency anaemia

The above pie diagram shows that the percentage wise number of sibilings 11 (36.7.%) belongs to one , 16 (53.3%) of them belongs to two and 3 (10%) above two.

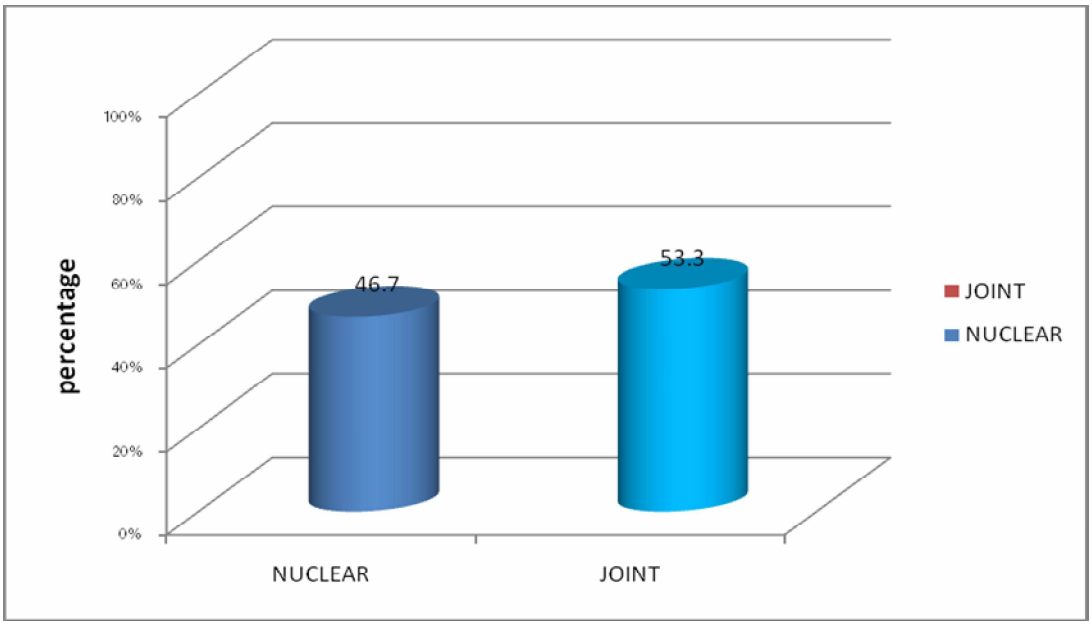


Figure 4 :Percetang Distribution of family type among adolescent girls on iron deficiency anaemia.

The above cylindrical diagram rreveals that 14 (46.7%) subjects are in a nuclear family and 16 (53.3%) subjects are in a joint family.

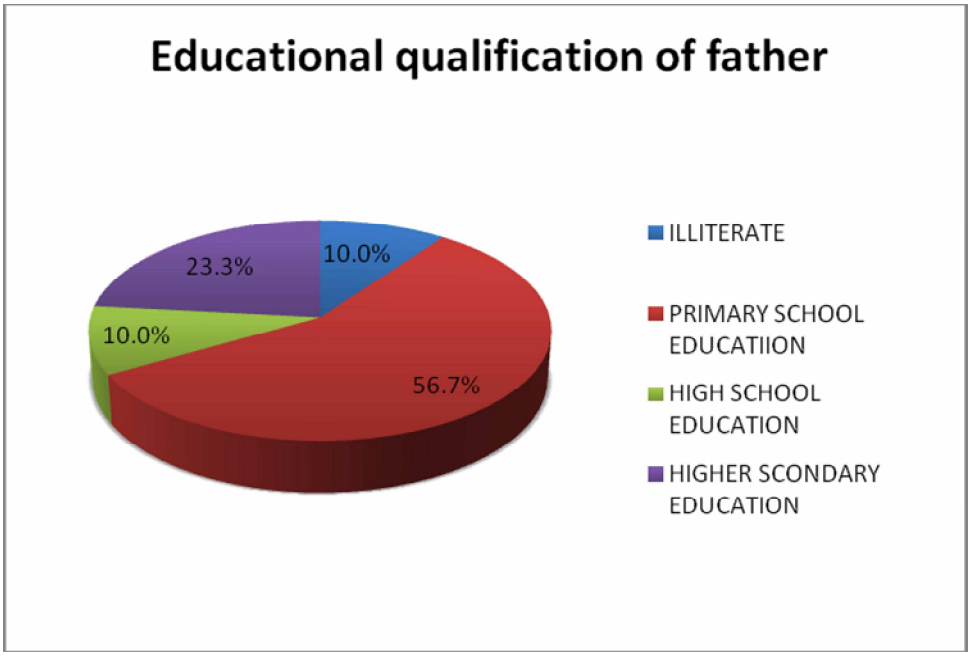


Figure 5 : Percentage distribution of educational status of the father among adolescent girls on iron deficiency anaemia.

The pie diagram reveals that 3 (10.0%) subjects father were illiterate, 17 (56.7%) subjects father completed their primary school education, 3 (10.0%) subjects father were completed high school education and 7 (23.3%) subjects father were completed upto higher secondary education.

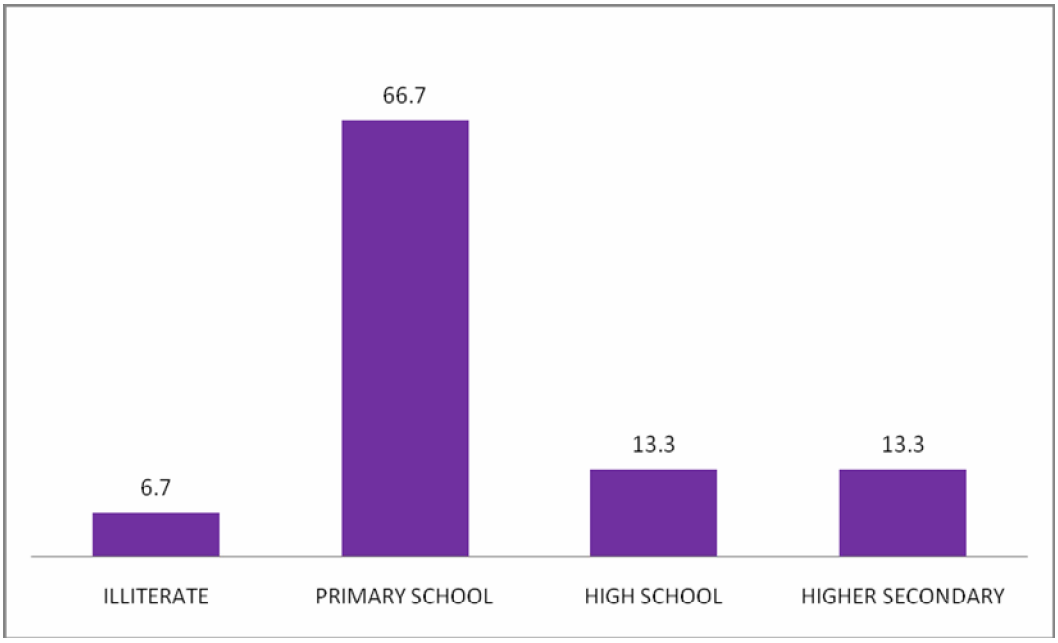


Figure 6 : Percentage distribution of educational status of the mother among adolescent girls on iron deficiency anaemia

The pie diagram reveals that 2 (6.7%) subjects mother were illiterate, 20 (66.7%) subjects mother completed their primary school education, 4 (13.3%) subjects mother were completed high school education and 4 (13.3%) subjects father were completed upto higher secondary education.

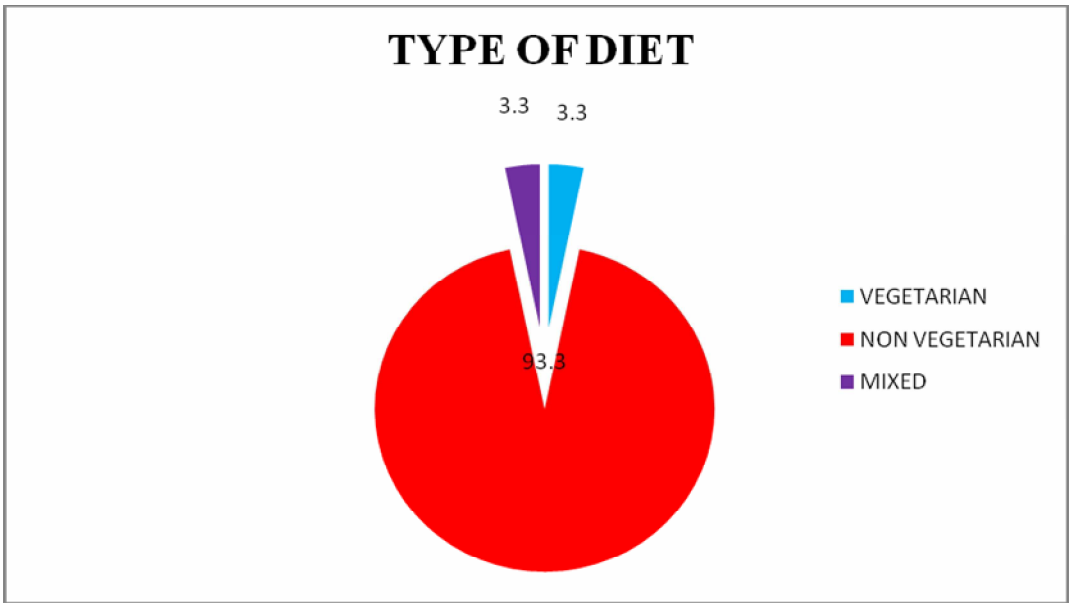


Figure 7 :Percantage distribution of type of diet among adolescent girls on iron deficiency anaemia.

The above column diagrams shows that 1 (3.3%) subjects were vegetarian, 28 (93.3%) subjects were non-vegetarian,and 1 (3.3%) subjects were belongs to 3.

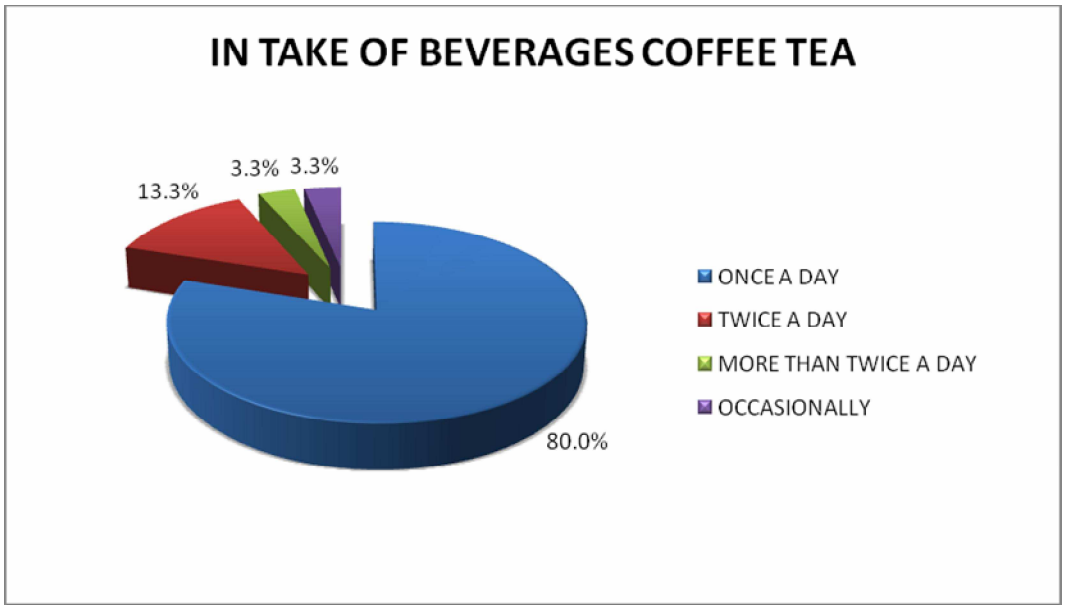


Figure 8 : Percentage distribution of intake of beverages, coffee / tea among adolescent girls on iron deficiency anaemia.

The above pie diagram shows that the percentage wise 24 (80%) belongs to once a day ,4 (13.3%) belongs to twice a day , 1 (3.3%) more than twice a day background, and 1 (3.3%) of them belongs to occasionally

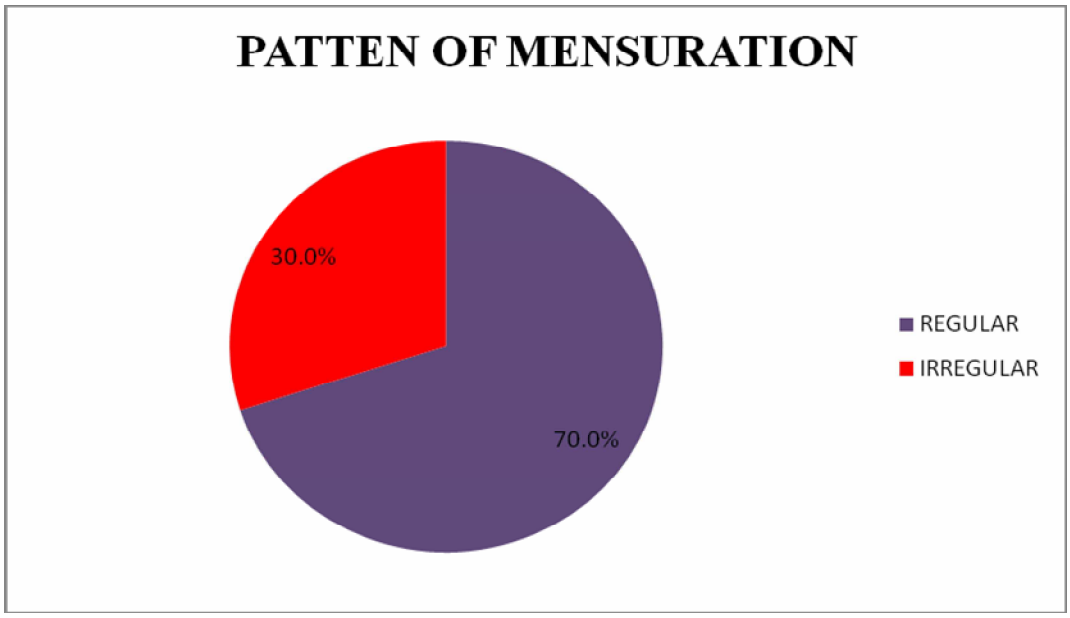


Figure 9 : Percentage distribution of mensurtion among adolescent girls on iron deficiency anaemia

The above column diagram shows that the percentage wise 21 (70%) belongs to regular pattern background, and 9 (30%) of them belongs to irregular pattern.

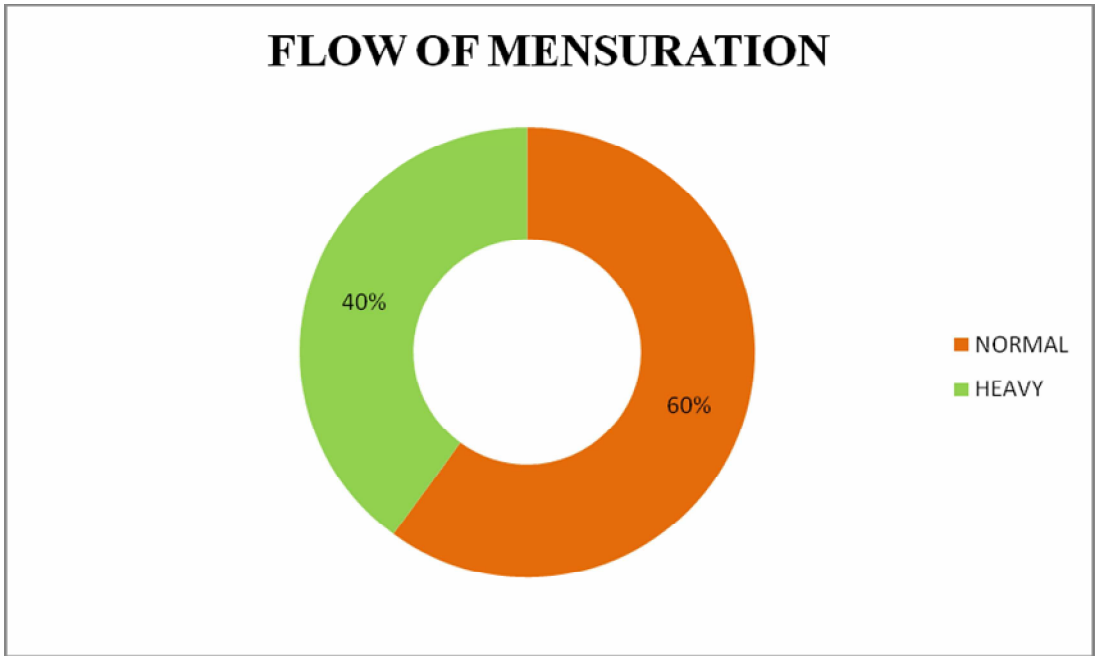


Figure 10 : Percentage distribution of flow of mensuration among adolescent girls on iron deficiency anaemia

The above doughnut diagram shows that the percentage wise 18 (60%) belongs to normal background, and 12 (40%) of them belongs to heavy.

SECTION- B

Assessment of pre and post test levels of hemoglobin among adolescent girls with anemia.

Pre and Post test mean standard deviation and mean difference

	Mean	**Standard deviation**	**Paired t value**	**Mean difference**
Pre test	11.003	0.920451 Sem=0.168	11.8810	-0.700 P=0.0001
Post test	11.703	0.860426 Sem=0.157		

***** Significant at P≤0.05

Table: 1shows the Preand Post test mean standard deviation and mean difference.

It reveals the pre test mean value 11.003 with standard deviation 0.920 and Post test mean 11.703 with standard deviation 0.860. the mean difference is -0.700 and the 't' value is 11.8. This difference is small and it is statistically significant. It was confirmed by using paired t -test.

PRE AND POST TEST MEAN AND STANDARD DEVIATION

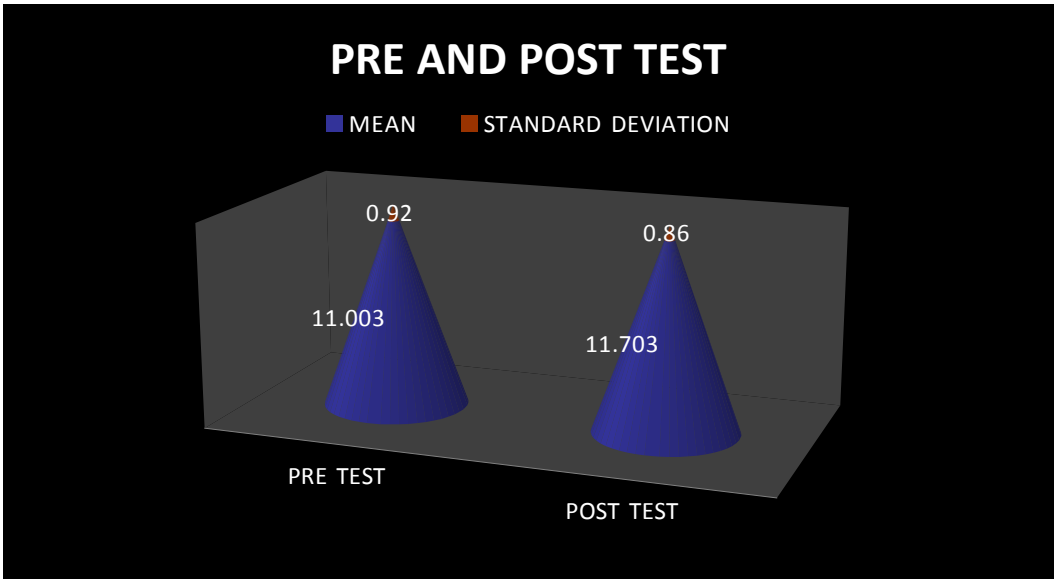


TABLE: 2

Percentage distribution of pre and post testtest levels of hemoglobin among adolescent girls with anemia

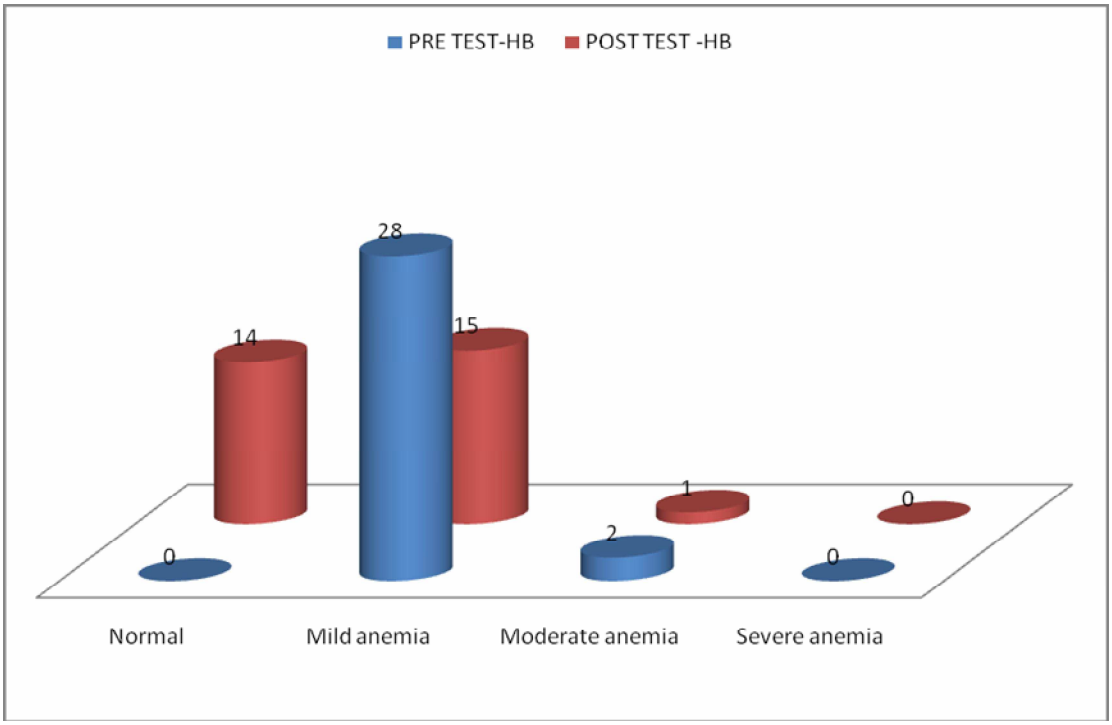
Level of anemia	Pre test		Post test		Calculated value	Table value	sinificance
	F	%	F	%			
Normal-(12 &above)	0	0	14	46.7	18.264	38.885	<0.05
Mild anemia-(11.9-10)	28	93.3	15	50			
Moderate anemia-(9.9-7)	2	6.7	1	3.3			
Severe anemia-(less than 7)	0	0	0	0			

***** Significant at P≤0.05

Table: 2 shows the Percentage distribution of pre and post test level of hemoglobin

Among pre test 93.3% of them are having mild anemia, 6.7% of them having moderate anemia and none of them are having normal and severe anemia. In post test, 46.7% of them are having normal hemoglobin, 50% of them having mild anemia and 3.3% of them are having moderate anemia and none of them in severe anemeia. Statistically there is asignificant difference between pre test and post test . It was confirmed by using chi square test.

PERCENTAGE DISTRIBUTION OF LEVEL OF ANEMIA



LEVEL OF ANEMIA

SECTION –C

Association between the post interventions level of hemoglobin among adolescent girls with anemia with selected demographic variables**.**

S.NO	DEMOGRAPHIC VARIABLES	LEVEL OF ANEMIA						CHI SQUARE
		NORMAL		MILD ANEMIA		MODERATE ANEMIA		
		F	%	F	%	F	%	
1	Age in years a)13yrs b)14yrs c)15yrs d)16yrs	- 7 3 4	- 23.3 10 13.3	1 10 3 1	3.3 33.3 10 3.3	- - 1 -	- - 3.3 -	6.042 P=0.109 NS
2	Religion a)Hindu b)Christian	4 10	13.3 33.3	6 9	20 30	- 1	- 3.3	0.935 P=0.333 NS
3	Number of siblings a)One b)Two c)Above two	5 7 2	16.7 23.3 6.7	5 9 1	16.7 30 3.3	1 - -	3.3 - -	2.392 P=0.302 NS
4	Birth order a)First child b)Second child c) Late	6 5 3	20 16.7 10	8 3 4	26.6 10 13.3	- 1 -	- 3.3 -	3.033 P=0.219 NS
5	Type of family a)Nuclear b)Joint	3 11	10 36.7	10 5	33.3 16.7	1 -	3.3 -	7.152 P=0.007 S
6	Monthly income of the family a)<5000 b)>5000	11 3	36.7 10	15 -	50 -	1 -	3.3 -	3.801 P=0.051 NS
7	Educational qualification of father a)Illiterate b)Primary school c)High school d)Higher secondary School	- 8 2 4	- 26.6 6.6 13.3	2 9 1 3	6.6 30 3.3 10	1 - - -	3.3 - - -	11.291 P=0.010 S

8	Educational qualification of mother a)Illiterate b)Primary school c)High school d)Higher secondary school	1 8 2 3	3.3 26.6 6.7 10	1 11 2 1	3.3 36.7 6.7 3.3	- 1 - -	- 3.3 - -	1.997 P=0.573 NS
9	Occupation of father a)Government employee b)Daily wager	1 13	3.3 43.3	2 13	6.7 43.3	- 1	- 3.3	0.336 P=0.5621 NS
10	Occupation of mother a)Government employee b)Daily wager	1 13	3.3 43.3	2 13	6.7 43.3	- 1	- 3.3	0.336 P=0.5621 NS
11	Type of diet a)Vegetarian b)Non vegetarian c)Mixed	- 14 -	- 46.7 -	1 13 1	3.3 43.3 3.3	- 1 -	- 3.3 -	11.101 P=0.003 S
12	Age of menarche a)< 0 years b)10-12 years c)12 years	9 4 1	30 13.3 3.3	12 2 1	40 6.7 3.3	1 - -	3.3 - -	1.398 P=0.497 NS
13	Pattern of menstruation a)Regular b)Irregular	9 5	30 16.7	11 4	13.3	1 -	3.3 -	0.723 P=0.395 NS
14	Flow of menstruation a)Normal b)Heavy	9 5	30 16.7	8 7	26.6 23.3	1 -	3.3 -	1.051 P=0.305 NS
15	Days of menstruation a)1-3 days b)3-5 days	7 8	23.3 26.6	6 8	20 26.6	- 1	- 3.3	0.843 P=0.358 NS
16	Have you done deworming before a)No b)Yes	8 7	26.6	5 9	16.7	- 1		1.714 P=0.190 NS
17	use chapels when you go to toilet a)Yes b)No	9 6	30 20	8 6	26.6 20	1 -	3.3 -	0.714 P=0.398 NS

18	Do you wash your hands with soap and water after each defection a)Yes b)No	13 2	43.3 6.7	13 1	43.3 3.3	1 -	3.3 -	0.422 P=0.515 NS
19	Consumption of green leafy vegetables a)1-3 times a week b)1-3 times in Two weeks c)Once a month d)Occasionally	1 2 6 5	3.3 6.7 20 16.7	- 5 5 5	- 16.7 16.7 16.7	- 1 - -	- 3.3 - -	3.149 P=0.369 NS
20	Consumption of citrus fruits a)1-3 times a week b)1-3 times in two weeks c)Once a month d)Occasionally	- 1 9 4	- 3.3 30 13.3	- - 10 5	- - 33.3 16.7	1 - - -	3.3 - - -	34.509 P=<0.0000 1 S
21	Consumption of ragi a)1-3 times a week b)1-3 times in two weeks c)Once a month d)Occasionally	1 - 3 10	3.3 - 10 33.3	- 1 5 9	- 3.3 16.7 30	- - 1 -	- - 3.3 -	5.815 P=0.120 NS
22	Intake of beverages coffee tea a)Once a day b)Twice a day c)More than twice a day d)Occasionally	13 1 - -	43.3	10 3 1 1		1 - - -		3.281 P=0.350 NS
23	Sources of information regarding prevention of anemia a)Mass media b)Books and magazine c)Relative and peer groups d)Health personal	- - 1 13	- - 3.3 43.3	1 1 1 12	3.3 3.3 3.3 40	- - - 1	- - -3.3	4.091 P=0.251 NS

***** Significant at P≤0.05

TABLE: 11 representthe association between the post testlevel of anemia among the adolescents girls with the selected demographic variables.

The above table shows association between anemia score and demographic variables of adolescent girls ,type of family, Educational qualification of father, type of diet, Consumption of citrus fruits more than others. Statistical significance was calculated using chi square test.

CHAPTER V

DISCUSSION

CHAPTER V

DISCUSSION

This chapter deals about the discussion of the study with appropriate statistical analysis and the finding based on the objectives and hypothesis of the study.

Distribution of demographic variables

According to the age distribution among adolescent girls, 1 (3.3%) of them were 13 years old, 17 (56.7%) of them were 14 years old,7 (23.3%) of them 15 years and 5 (16.7%) of them were in 16years.

In the aspect of educational qualification of father, illiterate 3 (10%) ,primary school 17 (56.7%),high school education 3 (10%) ,higher secondary education 7 (23%).

In the aspect of educational qualification of mother, illiterate 2 (6.7%), primary school 20 (66.7%),high school education 4 (13.3%) ,higher secondary education 4 (13.3%),

Based on the monthly family income, 27 (90%) students father's had monthly income of Rs .<5000 and 3 (10%) students father's had monthly income of >5000

Regarding the type of family, 14,(46.7%) were from nuclear family , and 16 (53.3%) of them were joint family. Regarding the numbers of siblings of the family, one 11 (36.7%), two 16 (53.3%) above two3 (10%) children in the family.

Regarding the type of diet, 1 (3.3%) were vegetarian and remaining 28 (93.3%) were consuming non-vegetarian 1 (3.3) were mixed type of diet

Regarding the habit of beverages taking tea/coffee, once a day 24 (80%), twice a day 4 (13.3%), more than twice a day 1 (3.3%) occasionally 1 (3.3%).

Regarding the religion, Hindu11 (36.7%), Christian19 (16.3%).

Regarding the birth order, first child 14 (46.7%), second child 9 (30%), later 7 (23.3%).

Regarding the occupation of father, government employee 3 (10%), Daily wager 27 (90%)

Regarding the occupation of mother, daily wager 27 (90%) and in government employee 3 (10%)

Regarding the Age at menarche, less than 10 years 22 (73.3%), 10-12 years 6 (20%), more than 12years,2 (6.7%).

Regarding the Patten of mensuration, regular 21 (70%) irregular 9 (30%) of them.

Regarding the Flow of mensuration, normal 18 (60%), heavy 12 (40%) of them

Regarding the days of mensuration, 1-3 days 13 (43.3%), 3 -5 days 17 (56.7%) of them.

Regarding the deworming, yes 25 (83.3%) no 5 (16.7%) of them.

Regarding the uses of chapels when you going to toilet, yes 18 (60%) of them and no 12(40%) of them .

Regarding the wash your hands with soap and water after defecation, yes 27 (90%) of them and no 3 (10%)

Regarding the consumption of green leafy vegetables, , 1-3 times a weeks1 (3.3%), 1-3 times in two weeks 8 (26.7%) once a month 11 (36.7%), occasionally 10(33.3%) of them Regarding the consumption of citrus fruits, 1-3 times a weeks1 (3.3%), 1-3 times in two weeks 1 (3.3%) once a month 19 (63.3%), occasionally 9 (30%) of them.

Regarding the consumption of ragi, 1-3 times a weeks1 (3.3%),%), 1-3 times in two weeks1(3.3%), once a month 9 (30%), occasionally 19 (63.3%) of them.

Regarding the sources of information regarding prevention of anemia, mass media 1 (3.3%) books and magazines 1 (3.3%) relatives and peer groups 2 (6.7%) health personal 26 (86.7%) of them.

The findings of the study as per the objectives were discussed under the following headings

The objectives of the study

1. To assess the level of anemic status among adolescent girls before and after intervention
2. To evaluate the effectiveness of drumstick leaves extract and amla powder on levels of anemic status among adolescent girls
3. To find out association between the pre testpost test levels of anemic status among adolescent girls with selected demographic variables.

OBJECTIVE 1:

The pre test mean value 11.003 with standard deviation 0.920 and Post test mean 11.703 with standard deviation 0.860. the mean difference is -0.700 and the 't' value is 11.8. This difference is small and it is statistically significant. It was confirmed by using paired t -test.

A study was conducted in an urban area under Urban Health Training Center, Department of Preventive and Social Medicine, Government Medical College and Hospital, Nagpur. A total of 296 adolescent females (10–19 years old) were included in this study. The study took place from October 2014 to March 2015 (6 months). Statistical analyses were done using percentage, standard error of proportion, Chi-square test, and Student's 't' test, anemia was found to be 35.1%. A significant association of anemia was found with socio-economic status and literacy status of parents. Mean height and weight of subjects with anemia was significantly less than subjects without anemia.

OBJECTIVE 2:

Among pre test 93.3% of them are having mild anemia, 6.7% of them having moderate anemia and none of them are having normal and severe anemia. In post test, 46.7% of them are having normal hemoglobin, 50% of them having mild anemia and 3.3% of them are having moderate anemia and none of them in severe anemia. Statistically there is a significant difference between pre test and post test . It was confirmed by using chi square test.

A study conducted among decreasing the dosage and frequency of iron supplementation is another strategy being promoted to improve the effectiveness of iron supplementation. In recent years, a number of study results have suggested that weekly iron supplementation was as effective as daily iron supplementation in raising Hb levels, in various groups at risk of iron deficiency anemia, and that the smaller dose administered in the intermittent regime was associated with fewer side-effects and thus better compliance. The effectiveness of the intermittent dosage regime has also been challenged, with the main argument that based on the calculated increased physiological iron requirements, sufficient iron could not be supplied by the weekly regime.(Liu. 2014; Ridwan., 2014; Schultink& Gross,

OBJECTIVE 3:

It shows association between anemia score and demographic variables of adolescent girls ,type of family, Educational qualification of father, type of diet, Consumption of citrus fruits more than others. Statistical significance was calculated using chi square test.

A study was conducted anemia among adolescent girls was found to be 78.8%. Out of119 anemic girls,75.6% girls were suffering from mild degree of anemia and 24.4% girls were moderate degree of anemia. Nobody was suffering from severe anemia. Anemia in adolescent girls is significantly higher in girls of illiterate or primary educated mothers (p=0.000), low socio economic status families (p=0.031), H/O excessive menstrual bleeding(p=0.001)no of H/O intake of beverages(tea , coffe) in last 6 months (p=0.001) and girls with under nutrition

CHAPTER VI

SUMMARY AND CONCLUSION

CHAPTER VI
SUMMARY AND CONCLUSION

The present study was conducted to assess the effectiveness of the drum stick leave extract with amla powder on anemic status among adolescent girls. The design was quasi experimental design. A total 30 adolescent girls who meet the inclusion and exclusion criteria were selected as a sample from the CSI Ruth Illam for girls Irungalur at Trichy. The samples were selected by purposive sampling technique. The investigators first introduced herself to the samples and developed rapport with them. After the selection of samples, the interview was being conducted with the instrument.

The statistical analysis to assess the level of anemic status among adolescent girls before and after intervention. The pre test mean value 11.003 with standard deviation 0.920 and post test mean 11.703 with standard deviation 0.860. the mean difference is -0.700 and the 't' value is 11.8. This difference is small and it is statistically significant. It was confirmed by using paired t -test.

The statistical analysis forto evaluate the effectiveness of drumstick leaves extract and amla powder on levels of anemic status among adolescent girls among pre test 93.3% of them are having mild anemia, 6.7% of them having moderate anemia and none of them are having normal and severe anemia. In post test, 46.7% of them are having normal hemoglobin, 50% of them having mild anemia and 3.3% of them are having moderate anemia and none of them in severe anemia. Statistically there is a significant difference between pre test and post testIt was confirmed by using chi square test.

The statistical analysis to determine the association between the post test level of anemic status among adolescent girls with selected demographic variables. It shows association between anemia score and demographic variables of adolescent girls, type of family, Educational qualification of father, type of diet, Consumption of citrus fruits more than others. Statistical significance was calculated using chi square test.

CONCLUSION

The main objective of the was to determine the effectiveness of drum stick leaves extract with amla powder on anemic status among adolecent girls at CSI Ruth Illam for girls Irugalluar at Trichy. The statistical analysis revealed that there is significant difference between post testlevel.The statistical analysis to assess the level of anemic status among adolescent girls before and after intervention. The pre test mean value 11.003 with standard deviation 0.920 and post test mean 11.703 with standard deviation 0.860. the mean difference is -0.700 and the 't' value is 11.8. This difference is small and it is statistically significant. It was confirmed by using paired t -test.

NURSING IMPLICATION

The findings of the study have certain important implications for the nursing services, education, research and nursing administration.

NURSING SERVICE

Nurses are act as a educator, leader, supervisor, protector, advocator and team member in various situation of work. Drumstick leaves soup with amla power on anemic status among adolescent girls, the findings of the study will helps to improve the hemoglobin level.

NURSING EDUCATION

The result of the study will help to the nurse educator to import the knowledge regarding drumstick leave extract with amla powder on anemic status among adolecent girls.

The study emphasis the need of educating the nursing personal, non nursing personal and the public through in service or continuing programme to update their knowledge and skills in educating the adolescent girls regarding drumstick leaves extract with amla powder on anemic status.

NURSING RESEARCH

The study can be a baseline for further studies to build upon. The study can be conducted in various group of adolescent girls with anemic.

NURSING ADMINISTRATION

The findings of the present study will help the nurse to organize and plan for educational programme by using various teaching methods and audiovisual aids.

RECOMMENTATION

- The experimental study can also be done to assess the effectiveness of drumstick leave extract with amla powder on anemic status among adolecent girls.
- The study can be done on large sample size to generalize the effectiveness of drumstick leave extract with amla powder on anemic status among adolecent girls.

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- www.pubmed.com
  www.nrhmtn.gov.in
- www.who.int/../en/
- www.censusindia.gov.in/2011
- www.anemia.org/patients/feature

APPENDIX

APPENDIX-I

Letter seeking permission to conduct pilot study

From

Rani Joseph,

2nd Year M.Sc. Nursing Student,

Indira College of Nursing,

Konalai, Trichy

To

The correspondent,

Shanthi Illam Ladies Hostel,

Teppakulam, Trichy

Through,

The Principal ,

Indira College of Nursing,Konali,Trichy.

Subject: Permission to conduct research study in your school

Respected Sir/Madam,

I am Rani Joseph, Studying 2nd Year M.Sc. Nursing (Pediatric Department) in Indira College of Nursing, Konalai. On behalf of my research study, I would like to conduct a study in your school for Adolescent girls (Anemic) by providing Drumstick Leaves extract and Amla powder to increase the Hemoglobin level of the girls. So I kindly request your permission to conduct this study in yourShanthi Illam Ladies Hostel premises.

Thank you

Yours Sincerely

Rani Joseph

Date:

Place:

APPENDIX-II

Letter seeking permission to conduct research study

From

Rani Joseph,

2nd Year M.Sc. Nursing Student,

Indira College of Nursing,

Konalai,Trichy

To

The correspondent

C.S.I. Ruth Illam for girls Irungalur, Trichy

Through,

The Principal ,

Indira College of Nursing,Konali,Trichy.

Subject: Permission to conduct research study in your school

Respected Sir/Madam,

I am Rani Joseph, Studying 2nd Year M.Sc. Nursing (child health Nursing) in Indira College of Nursing, Konalai. On behalf of my research study, I would like to conduct a study in your school for Adolescent girls (Anemic) by providing Drumstick Leaves extract and Amla powder to increase the Hemoglobin level of the girls. So I kindly request your permission to conduct this study in yourC.S.I. Ruth Illam for girls Irungalur, Trichypremises.

Thank you

Yours Sincerely

Rani Joseph

Date:

Place:

APPENDIX-III
LIST OF EXPERTS

1) Mrs. BERIL
Nehru College of Nursing
SF. No. 440/2B, Enamkulathur
Dindigul Road, Trichy
Tamilnadu, 620001

2) Mrs. LAKSHMI
Sakunthala College of Nursing
Keela Street, Murungapatti,
Mutharasanallur, Trichy
Tamilnadu, 620101

3) Mrs. SEPTNA MARY
Child Jesus College of Nursing
Trichy, Tamilnadu, 620001

4) Mrs. PARASAKTHI
Sakunthala College of Nursing
Keela Street, Murungapatti,
Mutharasanallur, Trichy
Tamilnadu, 620101

5) Dr. K. Senthil Kumar MD (Peds), DM (Neo)
Consultant Pediatrician and Neonatologist
Assistant Professor, K.A.P.V. Government Medical College &
M.G.M. Government Hospital, Trichy

APPENDIX-IV

CERTIFICATE OF CONTENT VALIDITY

This is to certify that the tool constructed by 301618302 studying II year M.Sc. Nursing (Child Health Nursing) at Indira College of Nursing, Trichy is validated by the undersigned, with Minor Corrections / Modifications/Suggestions and she can proceed with the Research Tool and conduct the main study for the Research Project entitled:

"A study to evaluate the effectiveness of drumstick leaves extract with amla powder on anemic status among adolescent girls at Indira College of Nursing, Konalai, Trichy"

Signature of the Expert:

Name:

Designation:

Seal:

Date:

Place:

APPENDIX-V

CERTIFICATE OF TOOL VALIDATION

I hereby certify that I have validated the tool of Miss. Rani Joseph who is undertaking the following study:

TOPIC: **A study to evaluate the effectiveness of drumstick leaves extract with amla powder on anemic status among adolescent girls at C.S.I. Ruth Illam for girls Irungalur, Trichy.**

Signature of the expert:

Designation and Address:

Place:

Date:

APPENDIX-VI

TOOL FOR DATA COLLECTION , PART I

INSTRUCTION:

The interviewer is directed to ask questions one by one. According to the response given by the respondent, the interviewer should place a tick mark on the answer.

DEMOGRAPHIC DATA: Sample No: _____

1. Age (in years):
   a) 13yrs
   b) 14yrs
   c) 15yrs
   d) 16yrs
2. Religion
   a) Hindu
   b) Christian
   c) Muslim
   d) Others
3. Number of siblings:
   a) One
   b) Two
   c) Above two
   d) None
4. Birth order:
   a) First child
   b) Second child
   c) Later
5. Type of family
   a) Nuclear
   b) Joint
   c) Extended

6. Monthly income of the family

a) <5000

b) 5001- 10,000

c) 10,001-15000

d) > 15000

7. Educational qualification of Father

a) Illiterate

b) Primary school Education

c) High school Education

d) Higher secondary School Education

e) Graduate

f) Any other

8. Educational qualification of Mother

a) Illiterate

b) Primary school Education

c) High school Education

d) Higher secondary School Education

e) Graduate

f) Any other

9. Occupation of Father:

a) Government Employee

b) Private Concern

c) Business

d) Daily Wager

e) Any other

10. Occupation of Mother:

a) Government Employee

b) Private Concern

c) Business

d) Daily Wager

e) Any other

11. Type of diet

a) Vegetarian

b) Non vegetarian

12. Consumption of Green Leafy Vegetables:

a) 1-3 times a week

b) 1-3 times in two weeks

c) Once a month

d) Occasionally

e) Never (Reason)

13) Consumption of Citrus Fruits (Amla/Lemon):

a) 1-3 times a week

b) 1-3 times in two weeks

c) Once a month

d) Occasionally

e) Never (Reason)

14. Consumption of Ragi:

a) 1-3 times a week

b) 1-3 times in two weeks

c) Once a month

d) Occasionally

e) Never (Reason)

15. Intake of beverages Coffee/ Tea:

a) Yes

b) No

If Yes:

a) Once a day

b) Twice a day

c) More than twice a day

d) Occasionally

e) Never (Reason)

16.Source of information regarding prevention of anemia

a) Mass media

b) Books and magazine

c) Relatives and Peer group

d) Health personnel

e) Never heard

MENSTRUAL HISTORY

17. Age at Menarche:

a) <10 years

b) 10-12 years

c)> 12 years

18. Pattern of menstruation

a) Regular

b) Irregular

19. Flow of Menstruation

a) Normal

b) Heavy

c) Scanty

20. Days of menstruation

a) 1-3

b) 3- 5 days

b) 6- 8 days

c) Above 8 days

HISTORY OF WORM INFESTATION

21. Have you done deworming before?

a) Yes

b) No

If yes how often you will do deworming _____

22. Do you use chapelswhen you go to toilet?

a) Yes

b) No

23. Do you wash your hands with soap and water after each defecation?

a) Yes

b) No

PART II

OBSERVATIONAL CHECK LIST TO ASSESS PREVALENCE OF ANEMIA

S.No	CHECK LIST	PRESENT	ABSENT
	SUBJECTIVE DATA:		
1.	Fatigue	1	0
2.	Decreased energy/weakness	1	0
3.	Headache	1	0
4.	Getting irritated often	1	0
5.	Brain fog/ Inability to concentrate or think clearly	1	0
6.	Angular cheilitis(Inflammatory lesions at the mouth corners)	1	0
7.	Strange cravings to eat items that aren't food, such as dirt or clay(Pica)	1	0
8.	Poor appetite/Loss of Appetite	1	0
9.	A tingling or crawling feeling in the legs/ Restless Leg Syndrome	1	0
10.	Hair loss	1	0
11.	Shortness of breath	1	0
12.	Dizziness/Light giddiness	1	0
13.	Palpitations (feeling of the heart racing or beating irregularly)while doing physical activities	1	0
14.	Nails that are weak/Brittle	1	0
15.	Heavy periods and irregular bleeding during Menstruation	1	0
16.	Delayed capillary refilling	1	0
	OBJECTIVE DATA:		
17 18 19 20	a. Pale conjunctiva b. Pale tongue c. Pale nail d. Pale palm	1 1 1 1	0 0 0 0

APPENDIX-VII

INFORMED CONSENT

(EEFECTIVENESS OF DRUMSTICK LEAVES EXTRACT WITH AMLA POWDER ON THE LEVEL OF HAEMOGLOBIN AMONG ADOLESCENT GIRLS)

SAMPLE NO:_____

The investigator / Nurse explained to me in detail about the procedure on estimation of Haemoglobin to reduce the level of anemia. My daughter will be interviewed to collect information as part of a study to assess the effectiveness of Drumstick Leaves Soup with Amla powder on the level of haemoglobin to prevent anemia.

I agree / do not agree my daughter to be interviewed and to participate in the study. I understand the following tests will be performed to check the haemoglobin level . Blood is collected from the side of the third or fourth left finger. Clean the site with spirit swab. Pierce the finger with sterile lancet firmly and rapidly. Wipe away the first drop of blood with cotton .Press the finger to produce a drop of blood. The information thus obtained from the interview and the test will be kept confidential and will be used to evaluate the usefulness of these tests in improving the haemoglobin level. I understand that these procedures are generally harmless, but may cause occasionally some mild complications like bleeding or infection, which can be satisfactorily treated. I also understand that my daughter will be advised appropriate treatment, (DRUMSTICK LEAVES SOUP WITH AMLA POWDER for 6 days a week for 3 months, if the haemoglobin level is mild and moderate and will be referred to medical treatment for severe anemia)

I hereby express my **willingness for my daughter to participate** in this programme and to undergo the above tests and treatment, if advised* / I am **not willing to allow my daughter to undergo** the above procedures*

Name: _____ signature _____

Address:

_____

_____

Place: _____

Date : _____/_____/_____

*strike out whichever is not applicable.

APPENDIX-VIII

பகுதி-அ

பின்னணிவிபரம்

கல்லூரிமாணவியர் பற்றியவிபரம்

1. வயது(வருடத்தில்) :

(அ) 13 வருடங்கள் (ஆ) 14 வருடங்கள்

(இ) 15 வருடங்கள் (ஈ) 16 வருடங்கள்

2. மதம் :

(அ) இந்து (ஆ) கிறிஸ்டியன்

(இ) முஸ்லீம் (ஈ) பிறமதத்தினர்

3. உடன் பிறந்தவர்களின் எண்ணிக்கை :

(அ) ஒன்று (ஆ) இரண்டு

(இ) இரண்டிற்குமேல் (ஈ) எவருமில்லை

4. பிறப்புவரிசை :

(அ) முதல் குழந்தை (ஆ) இரண்டாம் குழந்தை

(இ) அதற்குமேல்

5. எந்தவிதகுடும்பம் :

(அ) தனிக்குடும்பம் (ஆ) கூட்டுக்குடும்பம்

6. மாதகுடும்பவருமானம் :

(அ) <5000 (ஆ) 50001-10000

(இ) 10001 — 15000 (ஈ) >15000

7. தந்தையின் கல்வித் தகுதி

(அ) படிக்கவில்லை (ஆ) ஆரம்பகல்வி

(இ) நடுநிலைக் கல்வி (ஈ) பட்டதாரி

(உ) மற்றபிற

8. தாயின் கல்விதகுதி

(அ) படிக்கவில்லை (ஆ) ஆரம்பகல்வி

(இ) நடுநிலைக் கல்வி (ஈ) பட்டதாரி

(உ) மற்றபிற

9. தந்தையின் தொழில் :

(அ) அரசுஊழியர் (ஆ) தனியார் ஊழியர்

(இ) சுய தொழில் (ஈ) தினக்கூலி

(உ) இதரதொழில்

10. தாயாரின் தொழில் :

(அ) அரசுஊழியர் (ஆ) தனியார் ஊழியர்

(இ) சுய தொழில் (ஈ) தினக்கூலி

(உ) இதரதொழில்

11. எந்தவகைஉணவுபழக்கவழக்கம் :

(அ) சைவம் (ஆ) அசைவம்

12. பச்சைகீரைகாய்கறிகள் உட்கொள்ளுதல் :

(அ) 1-3 முறைஒருவாரத்திற்கு (ஆ) 1-3 முறை இரண்டுவாரத்திற்கு

(இ) மாதம் ஒருமுறை (ஈ) எப்பொழுதாவது

(உ) இல்லை (காரணம்)

13. அமிலத்தன்மைஉள்ளபழங்கள் உட்கொள்ளுதல் :

(அ) 1-3 முறைஒருவாரத்திற்கு (ஆ) 1-3 முறை இரண்டுவாரத்திற்கு

(இ) மாதம் ஒருமுறை (ஈ) எப்பொழுதாவது

(உ) இல்லை (காரணம்)

14. கேழ்வரகுஉட்கொள்ளுதல் :

(அ) 1-3 முறைஒருவாரத்திற்கு (ஆ) 1-3 முறை இரண்டுவாரத்திற்கு

(இ) மாதம் ஒருமுறை (ஈ) எப்பொழுதாவது

(உ) இல்லை (காரணம்)

15. காபி/தேநீர் பானங்கள் உட்கொள்ளும் அளவு :

(அ) ஆம் (ஆ) இல்லை

ஆம் எனில்,

(அ) நாளுக்குஒருமுறை (ஆ) நாளுக்கு இரு முறை

(இ) நாளுக்கு இருமுறைக்குமேல் (ஈ) எப்பொழுதாவது

(உ) இல்லை (காரணம்)

16. எதன் மூலம் இரத்தசோகைதடுப்புபற்றிவிளக்கம் கிடைத்தது?

(அ) தொலைக்காட்சி,ஊடகங்கள் (ஆ) புத்தகங்கள்

(இ) உறவினர் மற்றும் நண்பர்கள் (ஈ) உடல்நலஆலோசகர்

(உ) யாருமில்லை

Menstural History (மாதவிடாய் வரலாறு)

17. பூப்படைந்தவயது

(அ) <10 வருடம் (ஆ) 10-12 வருடம்

(இ) >12 வருடம்

18. மாதவிடாய் முறை

(அ) சாதாரணமாக (ஆ) முறையாக

(இ) அசாதாரணமாக (ஈ) மாறுபாடாக

19. மாதவிடாய் இரத்தபோக்குஅளவு :

(அ) சாதாரணமாக (ஆ) அதிகமாக

(இ) மிகஅதிகமாக

20. மாதவிடாய் நடக்கும் நாட்கள் :

(அ) 1-3 நாட்கள் (ஆ) 3-5 நாட்கள்

(இ) 6-8 நாட்கள் (ஈ) 8 நாட்களுக்குமேல்

History of Worm Infestation (குடற்புழுதொற்று)

21. இதற்குமுன் குடற்புழுநீக்கம் செய்துள்ளீரா ?

(அ) ஆம் (ஆ) இல்லை

22. கழிவறைக்குசெல்லும் போதுகாலனிஉபயோகிக்கும் பழக்கம் உண்டா ?

(அ) ஆம் (ஆ) இல்லை

23. ஒவ்வொருமுறைமலம் கழித்தபின் கைகளைசோப்புமற்றும் தண்ணீரினால் கழுவும் பழக்கம் உண்டா ?

(அ) ஆம் (ஆ) இல்லை

Consent Form (ஒப்புதல் படிவம்)

_____நான் செவிலியஆய்வாளரின் சோதனை முருங்கைகீரை சூப்புடன் நெல்லிக்காய் பவுடனர் கொடுப்பதன் மூலம் இரத்தத்தில் உள்ள ஹீமோகுளோபின் அளவு கூடி இரத்தசோகையை கட்டுப்படுத்துகிறது என்ற விளக்கத்தை தெளிவாக அறிந்து கொண்டேன். நான் இந்தஆய்விறகுஎன் முழு மனதுடன்,எவரின் கட்டாயத்திலும் இன்றிமுழுமையாக சம்மதிக்கிறேன். பின்வரும் சோதனையின் விளக்கத்தினை அறிந்துகொண்டேன்.

முதலில் இரத்தம் மூன்றாம் அல்லதுநான்காம் விரலில் சேகரிக்கப்படுகிறது. பின்புவிரல் சுத்தமசெய்யப்பட்டுசிறுஊசியினால் துளையிட்டுஒருசொட்டு இரத்தம் (**Homoglobinometer**) அட்டையில் செலுத்தப்பட்டு ஹீமோகுளோபின் அளவுகுறிக்கப்படுகிறது. 14 நாட்கள் ஆய்விற்குபிறகுமீண்டும் அதேமுறையில் இரத்தத்திலுள்ள ஹீமோகுளோபின் அளவுபரிசோதிக்கப்படும்.

சேகரிக்கப்படும் மாணவிகளின் விவரங்கள் எக்காரணத்தைகொண்டும் யாரிடமும் தெரிவிக்காமல் நம்பிக்கையாககையாளப்படும்.

பகுதி- ஆ

இரத்தசோகைஅடையாளம்கண்காணிபபுசரிபார்ப்புபட்டியல்

Checklist (சோதனைபட்டியல்)

வுஎண்.	மருத்துவஅறிகுறிகள்	ஆம்	இல்லை
1.	மயக்கம்		
2.	உடல் சோர்வு		
3.	தலைவலி		
4.	எரிச்சலூட்டும் உணர்வு		
5.	கவனம் செலுத்த இயலாமை		
6.	கோணஉதட்டழற்சி (வாயின் ஓரங்களில் அழற்சி)		
7.	மண்,சுண்ணாம்புஉண்ணுதல்		
8.	பசியின்மை		
9.	கை கால்களில் மதமதப்புமற்றும் குளிர்		
10.	முடி உதிர்தல்		
11.	மூச்சுதிணறல்		
12.	தலைசுற்றல்		
13.	அன்றாடவேலையின் போதுபடபடப்பு		
14.	மெல்லியஉடைந்தநகம்		
15.	மாதவிடாய் நேரத்தில் அதிக இரத்தபோக்கு		
16.	தாமதமானதமனி இரத்தஓட்டம்		
17.	வெளிரியகண்		
18.	வெளிரியநாக்கு		
19.	வெளிரியநகம்		
20.	வெளிரியஉள்ளங்கை		

APPENDIX-VIII
Pre test level of haemoglobin

MEDCLIN DIAGNOSTIC CENTRE

Fully Computerised Laboratory

PRE TEST LEVEL OF HAEMOGLOBIN

Level of Haemoglobin between 7.0 to 11.9 gm% of CSI RUTH ILLAM for Girls,Irungalur, Trichy

SR NO	NAME	HB	UNITS
1	E. BHUVANESHWARI	10.4	gm%
2	M.GOWRI	11.4	gm%
3	T.HEMALATHA	11.5	gm%
4	T.SAVITHA	11.7	gm%
5	S.DEEPA	11.6	gm%
6	S.DINCY	11.0	gm%
7	J.DOLPHIN	10.6	gm%
8	P.DHANA PAVITHRA	11.9	gm%
9	A.MARIYA REXLIN	11.6	gm%
10	K.SISILIA	10.5	gm%
11	P.SANGEETHA	11.2	gm%
12	S.VIJAYADHARSHINI	11.3	gm%
13	I.ARUL JEEVA MARY	9.4	gm%
14	P.DHANA STI	11.4	gm%
15	T.GOPIKA	10.3	gm%
16	R.PRIYA	11.7	gm%
17	M.ROSLIN MARY	7.4	gm%
18	S.VINOBA MARY	11.1	gm%
19	S.VINOLIYA	10.4	gm%
20	R.DAISY	11.9	gm%
21	V.IWRIYA	11.0	gm%
22	S.ANGELIN BEULA	11.8	gm%
23	S.JOSPHIN MARSHAL	11.5	gm%
24	A.LILLY ANANTHI	11.2	gm%
25	K.RUPA	11.6	gm%
26	V. VINOLIYA	10.0	gm%
27	T.VERGIN BEULA	11.7	gm%
28	V.DENITA	10.4	gm%
29	A.MERLIN SINDHYA	11.5	gm%
30	P.PRIYA	11.1	gm%

MEDCLIN DIAGNOSTIC CENTRE Trichy 621 111

LAB TECHNOLOGIST

(Arulsundar.D)

No.4 / 85, Sumangali Nagar, Main Road, Purathakudi, Mannachanallur (T.k), Trichy - 621 111.
Contact : 9843295050, 9543219148 E-mail : medclindiagnostics@gmail.com
Working Hours: 7.00 a.m. To 9.00 p.m. / Sunday National Holidays 6.30 a.m to 1.30 p.m.

BIO-RAD INTERNAL QUALITY CONTROL - USA

APPENDIX-IX
Post test level of haemoglobin

MEDCLIN DIAGNOSTIC CENTRE

Fully Computerised Laboratory

POST TEST LEVEL OF HAEMOGLOBIN

Level of Haemoglobin between 7.0 to 11.9 gm% of CSI RUTH ILLAM for Girls,Irungalur, Trichy

SR NO	NAME	HB	UNITS
1	E. BHUVANESHWARI	11.7	gm%
2	M.GOWRI	12.4	gm%
3	T.HEMALATHA	11.8	gm%
4	T.SAVITHA	12.0	gm%
5	S.DEEPA	11.9	gm%
6	S.DINCY	11.5	gm%
7	J.DOLPHIN	11.6	gm%
8	P.DHANA PAVITHRA	12.5	gm%
9	A.MARIYA REXLIN	12.2	gm%
10	K.SISILIA	11.5	gm%
11	P.SANGEETHA	11.9	gm%
12	S.VIJAYADHARSHINI	12.0	gm%
13	I.ARUL JEEVA MARY	11.0	gm%
14	P.DHANA STI	12.1	gm%
15	T.GOPIKA	11.3	gm%
16	R.PRIYA	12.2	gm%
17	M.ROSLIN MARY	7.8	gm%
18	S.VINOBA MARY	11.8	gm%
19	S.VINOLIYA	11.4	gm%
20	R.DAISY	12.4	gm%
21	V.IWRIYA	12.0	gm%
22	S.ANGELIN BEULA	12.5	gm%
23	S.JOSPHIN MARSHAL	12.4	gm%
24	A.LILLY ANANTHI	11.9	gm%
25	K.RUPA	12.0	gm%
26	V. VINOLIYA	11.0	gm%
27	T.VERGIN BEULA	12.0	gm%
28	V.DENITA	10.8	gm%
29	A.MERLIN SINDHYA	12.0	gm%
30	P.PRIYA	11.5	gm%

MEDCLIN DIAGNOSTIC CENTRE Trichy 621 111

LAB TECHNOLOGIST

(Arulsundar.D)

No.4 / 85, Sumangali Nagar, Main Road, Purathakudi, Mannachanallur (T.k), Trichy - 621 111.
Contact : 9843295050, 9543219148 E-mail : medclindiagnostics@gmail.com
Working Hours: 7.00 a.m. To 9.00 p.m. / Sunday National Holidays 6.30 a.m to 1.30 p.m.

BIO-RAD INTERNAL QUALITY CONTROL - USA

ANNUXURE- X

This is to certify that this dissertation work titiled a study to evaluate the effectiveness of drumstick leaves extract with amla powder on anemic status among adolescent girls at C.S.I. Ruth illam for girls at Irungalur, Trichy (dt) of the candidate Rani Joseph with registration number 301618302 for the award of M.Sc (Nursing) in the branch of Child health Nursing. I personally verified the urkund.com website for the purpose of plagiarism check. I found that the uploaded thesis file contains from introduction to conclusion pages and results shows80 to 100 percentage of plagiarism in the dissertation.

Guide &superisor sign with seal

LESSON PLAN

Topic- Iron deficiency anemia among adolescent girls
Time – 2hrs
Methods of teaching -Lecture cum discussion.
Audio-visual aids- Charts, posters, flash cards and flip charts.
Name of the guide- Mrs. Mohanambal m.sc(n)
Previous knowledge of group-

The group aware about anemia and its preventive measures.

General objective:

At the end of presentation, group will be able to understand nutritional deficiency, anemia and its prevention.

Specific objectives:
at the end of presentation, group will be able to-

- Define or tell the meaning of anemia.
- Classify the anemia.
- Know requirement of iron for different age groups.
- Explain causes and clinical features of nutritional deficiency anemia
- Explain assessment and diagnostic findings.
- Described the treatment of nutritional deficiency anemia

S. N.	SPECIFIC OBJECTIVE	TIME	CONTENT	TEACHING LEARNING ACTIVITY	A.V. AIDS	BLACK BOURD ACTIVITY	EVALUTION
1	Group will be able to define anemia.	03 mins 05 mins	**INTRODUCTION:** Iron deficiency anemia is a common blood disorder in India. the main effect of iron deficiency is decreased Hb and reduced oxygen carrying capacity of blood. **DEFINITION**:- Anemia is a condition of a Lower then normal level of hemoglobin, reflect fewer than normal RBcs. Within the circular. As a result the amount of O2 delivered to body tissue is also diminished.	Lecture cum discussion.	Chart		What is Anemia ?
2	Group will be able to classify	10 mins	**CLASSIFICATION OF ANEMIA** There are many kinds of anemia but all can be classified in to three etiologic categories:- 1) <u>Hypo proliferative (Resulting from defective RBc production)</u> ➢ Iron deficiency ➢ Vitamin B12 deficiency	Lecture cum discussion	Flash Card	Lecture	What are the classification of Anemia ?

	anemia.		➢ Folate deficiency ➢ Decreased erythropoietin production ➢ Cancer \ inflammation 2) <u>Bleeding (Resulting from RBc loss)</u> ➢ Bleeding from GI tract menorrhagia, epistaxis, trauma. 3) <u>Hemolytic (Resulting from RBc distraction</u>) ➢ Altered erythropoiesis (SCA, thalassemia, other hemoglobinopathies) ➢ Hypersplanism (Hemolysis) ➢ Drug included anemia ➢ Autoimmune anemia ➢ Mechanical heart valve related anemia. **REQUIRMENT OF IRON FOR DIFFERENT AGE GROUP** <u>AGE GROUP</u> <u>IRON IN mg(DAILY)</u> Infant(5-12mth) 0.7 Children (1-12yrs) 1.0 Adolescent(13-16yrs) 1.8(male) 2.4(Female) Adult male 0.9				

3	Group will be able to know the requirement of iron in different age groups.	10 mins	**Adult female** Menstruation 2.8 Pregnancy Ist half 0.8 IInd half 3.5 Lactation 2.4 Post menopause 0.7 **CLINICAL MANIFISTATION OF ANEMIA** ➢ Slight tachycardia ➢ Fatigue and exertion ➢ Dysponea ➢ Muscle pain or cramping ➢ Cardiac and pulmonary disease ➢ Anorexia ➢ Giddiness ➢ Swelling of legs **CAUSES OF ANEMIA** Iron deficiency anemia is very much prevalent in the tropics particularly amongst women of the child bearing age, specially in the under privileged sector. I. **Faculty dietetic habit**:- there is no deficiency of iron in the diet but the diet is rich in carbohydrate high phosphate and phytic acid help in the formulation of insoluble iron phosphate and phytic in the gut, there by reducing the absorption of iron.	Lecture cum discussion	Flash Card	Lecture	

4	Group will be able to explain clinical features.	10 mins	II. **Faculty absorption mechanism** because of high prevalence of intestinal infestation, there is intestinal hurry which reduces the iron absorption, hypochlorhydaria often associated with malnutrition also hinder absorption. III. **Iron loss** ➢ More iron is lost through sweat to the extent of 15mg/month ➢ Repeated pregnancies of short intervals. ➢ Excessive blood loss during menstruation.	Questioning	Flip Book	Lecture	What are the sign & symptoms of anemia ?
5	Group will be able to explain causes of anemia.	15 mins	➢ Hook worm infestation. ➢ Chronic malaria. ➢ Bleeding piles and dysentery. **ASSESSMENT AND DIAGNOISIS FINDING** ➢ HB, hematocrit, reficulocyte count, red cell incise, MCV evaluation. ➢ Iron studies (serum iron level, total iron binding capacity), percent saturation and fortune. ➢ Vit. B12 deficiency test ➢ Erythropoietin level ➢ CBC test ➢ Bone marrow aspiration ➢ Urine and stool examination **COMPLICATION:**	Discussion	Flash Card	Lecture	Write the different causes of Anemia ?

6	Group will be able to explain assessment and diagnostic findings.	10 mins	➢ Congestive heart failure ➢ Paresthesias and confusion **PROPHYLACTIC** The prophylactic includes 1. Avoidance of frequent child birth 2. Supplementary iron therapy 3. dietary prescription- the foods rich in iron are liver, meat, eggs, green vegetables, green peas, fish, whole wheat, Green plantains, onion, jiggery etc. 4. Adequate treatment: It should be instituted to eradicate the illness likely to Cause anemia. These are hookworm infestation, dysentery, malaria, bleeding piles, urinary tract infection latent as Overt. 5. Early detection of falling HB level is to be made. **CURATIVE** ➢ <u>Hospitalization:-</u> 1. Ideally all patients having HB level is less than 10gm/100ml should be admitted for investigation and treatment. 2. Associated obstratical- medical complication even with moderate degree of anemia. ➢ <u>General treatment</u> <u>1. Diet:-</u> realistic balanced diet which is rich in protein, ion and vitamin which is	Lecture	Black Board		Which are the methods of diagnosing Anemia ?

7	Group will be able to describe treatment.	15 mins	easily assimilate is prescribed. - To improve the appetite and facilities digestion- dilute HCL acid 2ml along with twice the amount of glycerin acid pepsin may be given TDS after meal. - To eradicate even a minimal septic focus by appropriate antibiotic therapy. - Effective therapy to cure the disease contributing to the cause of anemia. 2. <u>specific therapy</u> The principle is to raise the HB level as near to normal as possible. **IORN THERAPY** - oral therapy - potential therapy **IRON SUPPLIMENTATION** Several iron preparation- ferrous sulfat, ferrous glunate &ferrous fumarate –are available for treating iron deficiency anemia. One tablets of iron sulfate provide 60 mg of elemental iron. Thus it is important to continue iron for as long as 6-12 month.. In some cases, oral iron is poorly absorbed or poorly tolerated or needed in large amount. In this situation IM or IV of iron dextron may be needed. Iron dextron should be injected deeply into each buttock using the z track technique.	Lecture	Flash Card	Discussion	

			NURSING MANAGEMENT - Preventive education is important because iron deficiency anemia is common in menstruating and pregnant women. - Taking iron rich food with a source of vit-C enhances absorption of iron. - Nutritional counseling can be providing. - The nurse encourage patient to continue Iron therapy as long as is prescribed. **HOW TO TAKE IRON SUPPLEMENTORY** 1. Increase the intake of vitamin-c as it enhances iron absorption. 2. Eat food high in fiber to diminish problem with constipation. 3. Remember stool with become quit dark form iron. 4. If liquid form of iron are taken, they May be better tolerated than solid forms. However, they can discolor teeth. 5. Use a strew or place spoon at the back of the mouth to take the supplement, rinse the mouth thoroughly afterward. ALLEVIATE AND CONROLE THE				

			CAUSE Relive manifestation 1. Oxygen therapy:- oxygen therapy may be prescribed for client with severe anemia because their blood has a reduced capacity for oxygen. O2 help prevent tissue hypoxia and lessen the work load of the heart. 2. Erythropoietin:- s/c of erythropoietin can be given to treat anemia's of chrowc disease. 3. Blood transfusion:- severe anemia(Hb <6gm dl) MEGALOBLASTIC ANEMIA Anemia cause by vitamin B12 deficiency and folic acid are called megaloblastic anemia because they are characterized by the appearance of megaloblastic (large primitive RBCs) in blood and bone marrow. **Common feature of megaloblastic anemia** - Leucopenia, a decreased number of WBCs. - Thrombocytopenia, a decreased number of platelet. - Oral, GI and neurological manifestations. - A favorable response to injections of either vitamin B12 or folic acid.				

			PERNICIOUS ANEMIA Pernicious anemia is a type of narcotic anemia caused by failure of absorption vitamin B -12. Lack of gastric acid may lead to pernicious anemia. Causes- 1.lack of gastric acid 2. Autoimmune response. 3. Surgical removal of ileum. **Clinical manifestation** -low Hb, haematocrit and RBC level. -neurological disorder. -absence of HCL. -Low volume gastric acid secretion. **Outcome management** 1.Vitamin B-12 Client with pernicious anemia need both immediate and life long therapy with maintenance of vitamin B-12.during the acute phase of illness, client may be given vitamin B12 injection. Peripheral nerve function may improve the treatment. 2.iron supplement Injection of vitamin B-12 may cause rapid regeneration of RBC that depletes iron. 3.folic acid It is some time given with vitamin B-12 to client with a history of poor nutrition. 4.digestants				

			Dagestan's to enhance the metabolism of vitamin such as HCL diluted in water and given with meal, are often used during the first few weeks of vitamin B-12 therapy. FOLIC ACID DEFICIENCY ANAEMIA Anemia associated with folic acid deficiency is very common. **Causes-** 1. Inadequate intake of folic acid. 2. Increased demand. 3. diminished absorption. 4. Abnormal demand. 5. Failure of utilization. 6. diminished storage. Clinical manifestation 1.pallor 2. Ulceration of mouth. 3. enlarged liver and spleen. 4. Thin and emaciated client. 5. Cirhosis of liver. Diagnostic findings ➢ Hb level less than 10 gm % ➢ Stained blood film ➢ Serum B12 level. ➢ Bone marrow aspiration test ➢ Gastric secretion. **Importance of Moringa oleifera** "The miracle tree" Moringa oleifera is the tree from which the drumsticks (popularly called				

			‘sahjan’) is obtained have been used for culinary purposes, immense nutritional benefits and use in traditional medicine. The nutritional value of Sahjan is well established now and it has become a promising food for developing countries to prevent anemia and where malnutrition is prevalent. **IMPORTANCE OF AMLA** **Amla** is an excellent source of Vitamin C, hence it helps boost your immunity, metabolism and prevents viral and bacterial ailments, including cold and cough. Its nutritional profile also comes studded with a range of polyphenols that are known to fight against the development of cancer cells. The Indian gooseberry, known locally as Amla, is a tree that is famous for its nutrient rich fruits. It has been a common ingredient in the ancient Indian medicinal practice of Ayurveda. It’s a potent source of Vitamin C and also contains iron and calcium.				

CONCLUSION

Nutritional deficiency anemias are common in females in reproductive age groups. This increases the mortality rates in females in India. So preventive measures are very important to cure the anemia in females.

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APPENDIX-XII
Snap shots
Data collection


-CADRE:I
ARDEN

Drumstick leaves

Amla powder

Monitoring the level of haemoglobin

APPENDIX-XIII
Pamphlet on anemia